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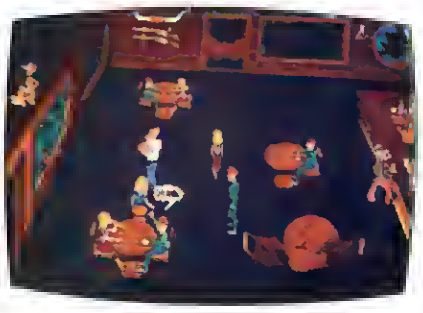

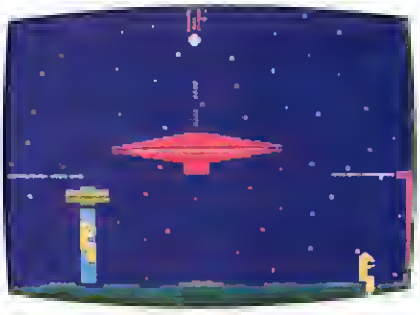

COVER PHOTO: ROSS M. HOROWITZ

keyboard

VIDEO AND COMPUTER GAMING ILLUSTRATED

An Editorial By Raymond Z. Gallun

Back at the turn of the twentieth century, L. Frank Baum's *Wonderful Wizard of Oz* first appeared—a charming, whimsical fantasy. In it, the Tin Woodman had once been a flesh-and-blood man; but through wicked witch-directed self-maimings with his axe, he lost his legs, arms, head, body, and heart. Except for his heart, all these parts were successfully replaced by a friendly tinsmith, until the Woodman became entirely a metal robot, though without activating mechanisms of any sort; apparently all his functions were driven by pure magic.

In this writing, L. Frank Baum was suggesting the oldest of human yearnings, seldom written about by anybody before: betterment, healing, widened range and ruggedness, freedom, conquest of pain and limitation, broadened comprehension of, and contact with, the universe.

By the early 1930s, such visions had moved somewhat beyond the impossible-dream phase, and there were glimmerings of how such wistfully viewed phenomena might be accomplished on a real, scientific basis. At least this seemed so in the then-expanding field of science fiction.

I don't know whether I thought consciously of Baum's Tin Woodman or not, but in January, 1935, a little story of mine, *Mind Over Matter,* was published in *Astounding Stories.* In it, a test pilot suffers a misfortune similar to the Tin Woodman's; he crashes in a new aircraft, and nothing of his body is salvageable except his brain. The difficulties in giving him a mechanical body are enormous, but mind-supported medical technology of the future time of the story is equal to this matter problem. The tiny electrical impulses meant to be transmitted from his brain to his living flesh along motor-nerve channels are electronically interpreted, so that he has complete control of muscles of literal steel. Similary, by a reverse process, he has sensory perception from artificial eyes, ears, finger-tips. He has become a mighty machine of metal and plastics, roughly manlike in shape. Being nuclear-powered, he has no need for food or oxygen to breathe, beyond the rather small requirements of the single, alive, and well insulated part of him that houses his mind and feelings. He is impervious to cold, and to anything less than red-heat. He is vastly stronger and more rugged than he used to be. He can survive comfortably in almost any environment.

But his great horror is his loss of the capacity to love and be loved in a human manner. He is enraged to the point of murder with his scientist-physician friend who saved him for this sorry state. So regretfully, his friend introduces "adrenalin and something else"—presumably mood-changing hormones—into the blood-system that nourishes his brain. Again mind triumphs over matter. His attitude does a turn-about. He begins to feel euphoric about his new advantages. And his friend reassures him more substantively: His human limitations have dwindled. He is now almost immortal. Many strange and wondrous experiences lie ahead. And with time and further progression, means may be found to give him a living human form again—if he wants it. So he looks up at the full moon, and it "beckons like the call of home." He is ready for space, other worlds, maybe even other star-systems.

This little story, almost forgotten, seems to be surfacing again in the perceptions of some people. Is it because parts of it are coming true?

For instance, an artificial heart, practical enough to be fuss-free most of the time, seems close to reality, promising to end one more human hazard and limitation. Also the ionic nature of nerve-signals, both motor and sensory, is becoming better understood and applied. Prosthetics, in which such brain-messages can be used to guide the movements of artificial limbs and fingers, are already in the developmental stage. Soon there may be mechanical hands as effective as living ones, and cosmetically indistinguishable.

Continued on page 50

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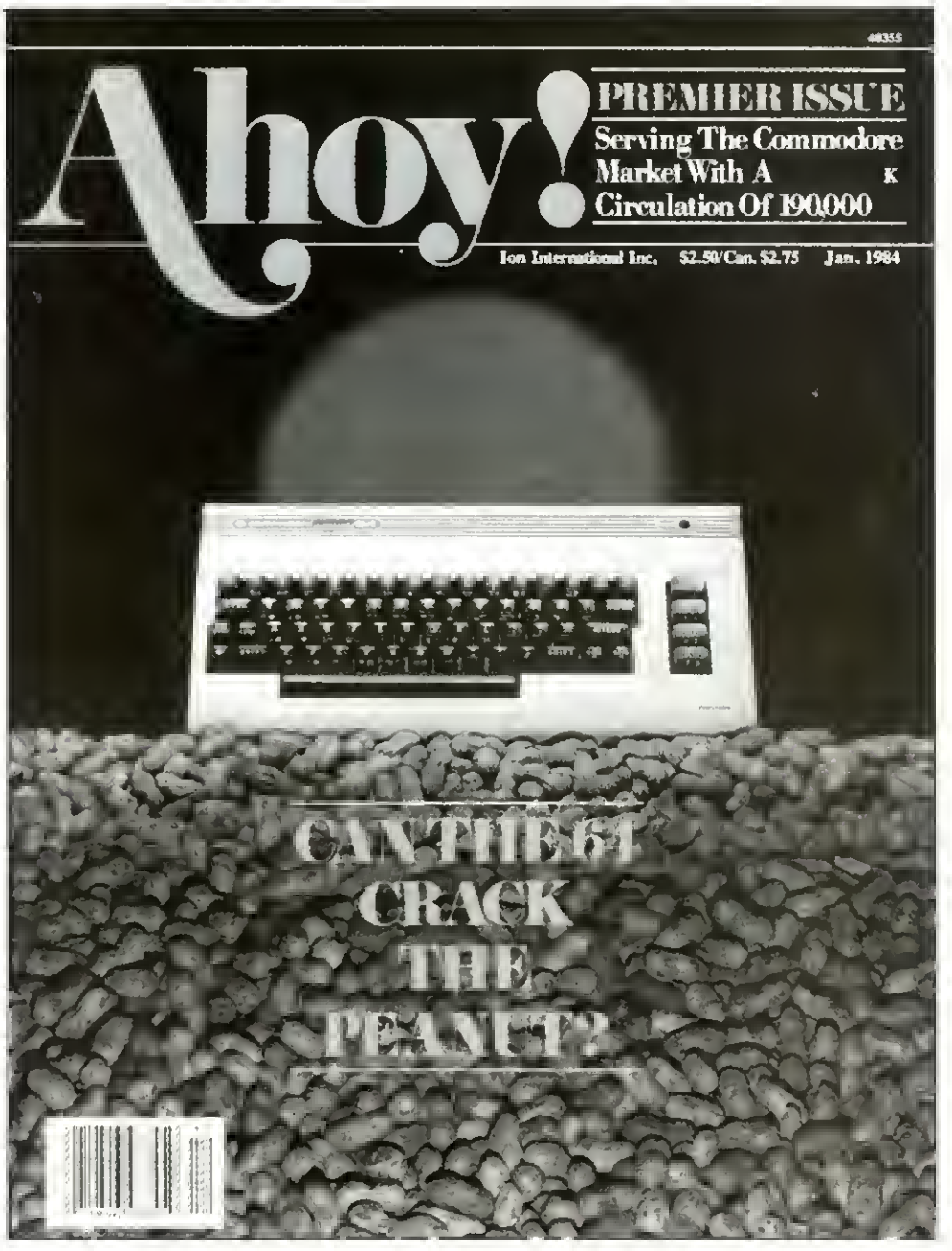

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LASER BEAMS

Laserdisc games may soon go the way of discos, the North American Soccer League—and home videogames—from being an almost universally popular phenomenon to an attraction with a steady but modest following. That may happen soon, but for the present, the advent of laserdisc has injected new life into the arcades—and the videogame industry as a whole.

Bega's Battle, reported on in last issue's *Eye On,* has indeed proved to be but the first of a mounting number of laserdisc games brought out by manufacturers who hope to cash in on the success of *Dragon's Lair.*

Mylstar Electronics has produced *M.A.C.H. 3* (short for Military Air Command Hunter). The unit incorporates film footage of the land the player is flying over, wraparound Fresnel lens which increases the screen size, sound effects, and a rumbling seat. Other features include bomber/fighter option and a joystick with 180-degree movement, bomb release buttons, and a trigger. Both cockpit and upright versions will be marketed.

Save a fistful of half-dollars to play *Firefox,* based on the Clint Eastwood film. As U.S. Major Gant, your task is to steal the prototype for the Firefox war plane from the Soviet Union, dodging radar trackers, Russian MIGs, and other Firefox prototypes, while coping with a diminishing fuel supply. Footage and dialogue from the movie are incorporated.

Atari, Inc., makers of the game, can pat themselves on the back for not merely utilizing the laserdisc technology that produced *Dragon's Lair,* but improving on it: the game jumps quickly from spot to spot on the disc, without temporarily blanking out the screen.

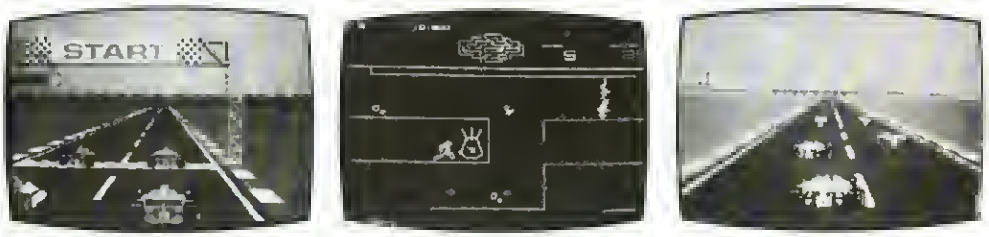
Also following Don Bluth's *Dragon's Lair* into the laserdisc arena will be —Don Bluth's *Space Ace.* For that game, and for *Laser Grand Prix* from Williams, no definite release dates are available.

Back in that cobweb-encrusted section of the arcade that features old-fashioned 25¢ games, you may find *Pro Bowling,* new from Data East. It allows the player to control the trajectory of the ball, selecting from a variety of curves. An action button controls the power of the roll. Screen shows the ball rolling down the alley, and switches to a top-view that depicts the pins being bowled over in a 3D effect.

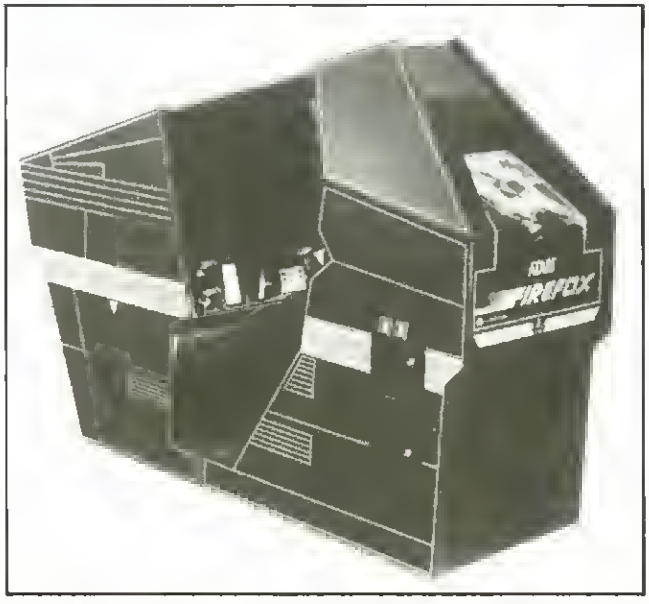
Atari has also released *Pole Position II,* an enhancement kit for *Pole Position.* Your arcade owner does the enhancing —you just enjoy the three new tracks, new special effects, and new background scenery.

Atari has also created *Major Havoc,* who fights to save his ancestors from the evil Vaxxians. Leading a band of clones, he enters enemy space stations to destroy the reactors within. The four waves feature Havoc flying with the aid of a tactical scanner, firing at enemy robots from his Catastrofighter, landing his craft on an enemy platform, and skulking through the space station, a maze filled with unfriendly robots, deadly electric walls, and red trip pads that release fireballs. The first wave also features a game within a game: a small *Breakout* contest in the lower right hand corner of the tactical scanner, which can earn you a bonus life. Another nice facet is an "add-a-coin" option that lets you start a new game at the point you left off.

Finally, I.D.A. Inc. is gambling on *Chips,* a countertop unit that gives high rollers their choice of poker, twenty-one, craps, baccarat, and dogs, accompanied by video graphics, win tunes, and background audio.



Two views of* Pole Position, *sandwiching* Major Havoc—*all from Atari.



Cockpit version of laserdisc* Firefox *from Atari.

NAMES OF THE GAMES

This month's harvest of new home videogames looks practically bountiful compared to last month's crop failure. (What a time to release a game, though —too late to include in your letter to the north pole, and too early for the average wallet to have recovered from holiday gift-giving.) We can only hope that last month's dearth was a matter of timing, and that the current gag-

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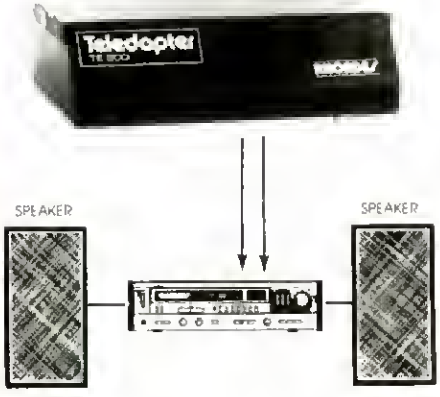

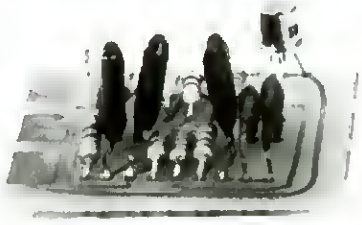

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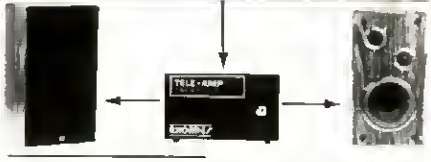

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If you have a stereo, then the Teledapter is all you need. Order model TE•200 $39.95 plus 3.00 shipping

THE SOUND

Words are hard pressed to describe the sound of a car on TV squealing around a corner, appearing to move from one side of the living room to the other. Or the crowd at a ball game, the crack of the bat, the whistles, as though you were on the playing field. And musicals, the pounding of the drums, the tingling of the cymbals, all coming from different locations.

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[WRITE FOR COMPLETE CATALOG]

gle of goodies is closer to what the industry will be offering on a monthly basis.

Parker Brothers has announced plans to make four of their 2600 hits available for a slew of major video/computer systems, including the **Atari 5200.** These games include *Popeye* (see this month's *Preview*), *Super Cobra* (blast obstacles while piloting a chopper through tunnels, around buildings, over mountains), *Astro Chase* (battle eight varieties of alien vessels while destroying megamines, deadly to our solar system), and the ever-popular, interminably imitated *Q*Bert.*

From CBS Electronics comes *Omega Race* (caromatic *Asteroids*-style shoot-out), *Tunnel Runner* (first-person perspective maze chase), and *Madden Football* (the Game of the Week without commercials or Howard Cosell).

Omega Race and *Tunnel Runner* have been released as well for the **Atari 2600.** Expected soon for that system are Parker Brothers' *Ewok Adventure* (land battle with fuzzy wuzzies from *Return of the Jedi*) and *Deathstar Battle* (also a Star Wars adaptation), plus 20th Century-Fox's *Fall Guy*, based on the TV series. In this last, the Lee Majors characters must dodge Hollywood monsters while trying to scale the side of a building. In slow motion, we presume. Or was that another Lee Majors character?

The latest double-ender (one cartridge, two games) from Xonox includes *Chuck Norris-Superkicks*, dispatching the martial arts champion on a quest for mystical truths contained in a monastery. Naturally, the only time he bends a knee is to put it thruugh someone's sternum. Using an assortment of kicks, punches, and blocks, he battles his way to the ultimate confrontation with the magical Ninja. In *Artillery Fire*, the cartridge's other half, you'll send salvos across a valley at your opponent, adjusting and readjusting your trajectory until you score a direct hit. Changing wind and terrain, and your foe's return fire, make doing so more difficult.

Sunrise Software's latest games: rooster graphics?

Sunrise Software has announced a December availability for *Glacier Patrol* and *Snowplow.*

Sunrise has also slated for December release four action games for **ColecoVision.** In *Quest for Quintana Roo*, Yucatan Sam seeks to solve a Mayan mystery by crawling through the hundreds of chambers that comprise the mystical temple of Quintana Roo. In *Rolloverture* you help a conductor scurry around the orchestra pit, placing music balls in music maker slots to insure that the correct notes are played. The educational *Campaign '84* requires you to plot your Presidential campaign, including defining your stand on the issues and raising funds. The goal of *Gust Buster* is to land in an amusement park where you will sell balloons, avoiding rides, fireworks, elephants, and other hazards.

Newly released is Imagic's *Nova Blast*, along with the abovementioned games that are available or shortly to be so: *Chuck Norris/Artillery Duel, Q*Bert, Popeye, Super Cobra, Astro Chase, Fall Guy*, and *Madden Football.* Plus Coleco's own oftimes mentioned—not yet released *Buck Rogers, War Games*, and *Dukes of Huzzard.*

Pitstop from Epyx thrusts race-game fans into the real world, where it's not all whipping around corners and weaving through the pack. You will have to enter the pit periodically to refuel and retool. When you enter is your decision, based on factors such as how much gas you use and how fast your tires wear out. Can be played by one to four people.

Pitstop *for ColecoVision.*

Atari's Atarisoft subsidiary has made its first batch of releases for competing computers and videogame consoles. Coleco compatibles consist of *Galaxian, Centipede*, and *Defender.*

Atarisoft releases for **Intellivision** are *Centipede, Defender*, and *Pac-Man.* Also available, or soon to be, are the previously mentioned *Deathstar Battle, Q*Bert, Popeye, Super Cobra, Astro Chase*, and *Nova Blast.* And another Imagic adaptation: *Fathom* (turn into a dolphin and a sea gull to rescue a mermaid).

SCHWINN 2600

Gordon R. Dickson speculates, in this issue's *Arcadia*, on games of the future that will carry interaction to extremes: where, for example, if you get killed in a maze, you suffer a heart attack and die.

1984 this may be, but we don't want any unpleasant science fiction stories coming true. So we urge you to check out the old cholesterol count before plugging in Suncom's *Aerobics Joystick.*

Actually, you're liable to suffer nothing worth than an improved cardiovascular system from using this ingenious new device that interfaces between most standard exercise bikes and an Atari 2600 or 400/800/1200 computer, or Sears Telegame. While

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THD of Amplifier: Less than 1%
Power Out: 30 mW per channel
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Headphone Weight: .5 ounces per set
Headphone Magnetic Material: Samarium Cobalt

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While its true that today's modern headphones have come a long way, THEY'RE NOW OBSOLETE when compared to the advanced mini-earphones supplied with the MI-FI SHIRT POCKET STEREO.

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Aerobics Joystick: ***pedal your way into the pink.***

the fire button-equipped joystick will work with shoot-'em-ups, best results are obtained with driving games (particularly, the manufacturer tells us, *Enduro).* The faster you pedal, the faster you drive.

What could be more boring than pedaling a stationary bike—or worse exercise (thumb and forefinger excluded) than wiggling a joystick? Suncom has combined the two activities to their mutual benefit. Price is $39.95.

Of more dubious benefit is Suncom's *Joy Sensor* for ColecoVision and Adam. Previously available for Atari, the controller utilizes a flat disc in lieu of a joystick. This allows you to trade joystick control for the type of control found in Intellivision. If you want to. (We suppose you can also replace enough parts in your Porsche to get the type of control found in a Buick—if you want to.)

Suncom cites the *Sensor's* advantages as faster movement and greater control. It also features a diagonal lock-out switch, allowing you to travel in only four directions when playing maze games. (The controller features a total of eight directions, compared to sixteen for Intellivision.) List price is $36.95.

We'd sooner spend $5.95 on a pair of *Snappers.* Suncom's height-ex-

Get off the stick.

tender for the Coleco joystick, unlike some others, requires no disassembly of the controler—it snaps on in ten seconds with no tools or glue. Two foam shock absorbers prevent over-exertion of the knob.

Finally from Suncom, there's the *Starfighter* joystick for Apple computers. It joins the version previously released for Atari VCS and 400/800 computers, Sears Telegame, and Commodore VIC 20. The analog controller features

Starfighter ***for Apple.***

adjustable joystick throw limiter, dual axis centering trimmers, hi/lo sensitivity switch, dual left/right firing buttons, and an alternate fire/function button. The unit comes with a two-year guarantee; three additional years are available at an extra charge.

THE BIG CHILL

After Activision sent us a mad bomber to hype their *Kaboom!* for Atari computers, it chilled us to the marrow to think how they'd promote *Frostbite.* A snowball raid? A polar bear? Flash-freezing our receptionist?

Happily, they sent nothing worse than a lovely parka-clad Eskimo who turned our hearts to mush.

Snapper ***raises your Coleco joystick to new heights.***

PARTY MIX

Starpath for the 2600 (Supercharger and audio cassette player required)

Object

There are five different games on this tape: 1) *Bop a Buggy:* you must maneuver your vehicle through various obstacle courses. 2) *Tug of War:* tap the action button faster than your opponent to pull her/him over the center marker. 3) *Wizard's Keep:* fling fireballs horizontally across the screen at moving targets on the other side. 4) *Down on the Line:* catch packages as they come from colored conveyor belts on the left, placing them on the same colored belt on the right. 5) *Handcar:* race a handcar along a railroad track by keeping the rider's hand level with the handlebar.

J.C.: Against the common wisdom that it's better to do one game right than two or more not-so-right, Starpath has bucked the odds and come up with a super package.

Roaming back and forth between the games makes for—well, a great party mix. More importantly, however, you get camaraderie with your variety, since the game can be played with from one to four people. There hasn't really been a potpourri cartridge like this since *Video Olympics* for the 2600.

Bop a Buggy is the weakest of the group, pale compared to the old Atari race games for the same unit. There are only a handful of screens, none particularly exciting.

Tug of War isn't a challenge in the traditional sense: it's just great fun with friends, whereas *Wizard's Keep* is *Breakout* with a twist. The *Wizard* keeps swinging his arm like a pinwheel; you must release the fireball at precisely the right moment or it'll hit the ceiling, floor, behind you—everywhere but the target. Great fun!

Down on the Line is the most frantic of the games, since the packages come along the belts pretty quickly, and *Handcar* is a new high in hand-eye coordination. The more carefully you keep your hand on the bar, the faster the car goes—and the faster the bar moves up and down.

***Some of the ingredients of Starpath's* Party Mix: Down on the Line, Wizard's Keep, Bop a Buggy.**

Wonderfully executed, and worth the purchase of the Supercharger.

Graphics: B–

Gameplay: B

E.C.M.: First, I think Jim missed the point on *Bop a Buggy*. The course isn't meant to be run solo: you compete against another player. As such, the race is long enough to allow the lead to change hands frequently—the time you save on a maze screen may be lost in the moving wall screen—while it's short enough so that you can't afford to get too sloppy.

What's really exciting about what Starpath has done is the way they've used the all-but-abandoned paddle controllers in so many different ways. You pump the action button on *Tug of War*, spin the paddle and fire the button on *Wizard's Keep*, steer in *Bob a Buggy*, use the paddle to fine-tune your positioning in *Handcar*, and jockey the paddle to run like a bandit in *Down on the Line*.

Resourceful as hell, all of this, especially where the visuals are concerned. The game is not only colorful, but the buggy, Wizard, and Tug of Warriors are wonderfully animated. The package collectors and handcar operators leave something to be desired, but I'm not going to nitpick an otherwise perfect cartridge.

Party Mix is a welcome solution to the problem of inventory which rots on store shelves. You're paying regular price for one cartridge, but getting five different games. I hope Starpath can move a lot of them.

Graphics: B

Gameplay: A

POPEYE

Parker Brothers for Intellivision

Object

Popeye is trying to collect Hearts, Notes, and cries for HELP tossed from the top of the screen by Olive Oyl. To do so, he must quickly ascend and descend to different levels, avoiding the slugging fists of Brutus as well as Vultures or Bottles tossed by the nefarious Sea Hag.

Occasionally, a can of Spinach will appear for a few moments somewhere on the screen. If Popeye can reach it, then quickly get to Brutus and deck him, the player gets a point-windfall. Olive's ar-

tifacts; caught during the few seconds while Popeye is under the influence of Spinach, are worth double points.

E.C.M.: Before we talk about *Popeye*, I'd like to talk about Parker Brothers.

It's a policy among the software companies to send complimentary disks and cartridges to the videogame and computer magazines. This accomplishes two things: it increases the chances that the game will be reviewed and, sent weeks or months before the games go on sale, helps the magazines to schedule their coverage of the product to coincide with the product's release.

Last fall, Parker Brothers stopped sending games to us. We called and asked why. They replied that there weren't enough cartridges to go around. We didn't believe that and pressed their spokesperson, who finally admitted that they simply didn't like the bad reviews we were giving their games. We pointed out that, to the contrary, we loved many of their games. We just happened to think that a few, like *Super Cobra*, were gutter-level stinkers. And said so.

Parker Brothers was intransigent. and we promised that that wouldn't stop us from reviewing their games: we'd buy them and cover them late, but cover them we *would!* And objectively, unlike other publicatons which are afraid to lose their advertising.

Eventually, Parker Brothers realized that they were being smallminded and relented. Thus, we can report not one, but *two* happy endings: we've got the games, and the most recent, *Popeye*, is a winner.

Virtually all the gameplay of the arcade edition is here, and if the graphics and animation are comparatively stilted, there is no doubt who the characters are.

If you're still using a disc on your keypad controller, you'll find this slightly easier to manage than in, say, *Burgertime:* there's primarily left/right movement, which means you won't have to do as much clumsy tap-tap-tapping.

Newcomers to the game will find a good deal of personality in *Popeye*, not to mention relatively innocent and challenging fun for all ages.

Parker Brothers is to be commended. For the game, anyway.

(Incidentally, we've been told that our review of the Xonox cartridge left *them* so perturbed that we may be scuttled from their product list as well. Sorry, Xonox: we didn't realize you pronounced it 'No Knocks.')

Graphics: C+

Gameplay: B

J.C.: While agreeing that *Popeye* is a good game of this type, 'this type' is getting a bit shopworn. If it weren't for the novelty of the Popeye characters, there would be no creative reason for the game to exist; if you already own *Beauty and the Beast* from Imagic, you'll find this redundant. What you're paying for is familiar faces.

In and of itself, *Popeye* isn't without individualistic merit. Unlike *Beauty and the Beast*, Olive's ejecta falls along maddeningly zigzag paths. Then too, the coming of the Spinach makes for often dangerous side-trips: not only do you lose points by abandoning the Hearts, etc., but you're often maneuvering around game obstacles to reach the can. I give it an 'okay'—nothing more.

Graphics: B–

Gameplay: C

PRESSURE COOKER

Activision for the 2600

Object

Sam the short order chef has to make hamburgers for the hungry multitude. But, as with anything in Activision land, it isn't easy.

As the burgers come down the conveyer on the left, Condiments come flying from a chute on the right. The player must catch these and build Hamburgers according to the 'have it your way' orders on the bottom of the screen (lettuce, no tomato; cheese, no onion; etc.).

When a Hamburger has been completed, the bun top comes flying out. Catching it, Sam must complete the sandwich and run to the Wrapping Screen. There, he must drop the order down the chute whose color corresponds to the color of the order on the previous screen.

All the while, patties keep rolling. If enough patties pass unmade, falling off the belt, Sam's efficiency rating drops.

Points are scored for serving finished burgers correctly. These *add* to Sam's efficiency rating. The rating also plummets if Sam drops a sandwich down the wrong chute,

misses the chute, or catches a Condiment he doesn't need. Sam's efficiency rating starts at fifty: when it reaches zero, the game ends, and Sam is on the unemployment line.

J.C.: Consumers who approach this game with the preconceived notion that it is nothing more than a *Burgertime* twin will find it surprisingly different.

Pressure Cooker is one of the few narrative games for the 2600. We're not talking Hemingway here, but there *is* a sense of time passing and a job to be done, which increases identification with Sam and, hence, enjoyment of the cartridge.

Gamewise, *Pressure Cooker* may not *look* very flamboyant, but it's a frantic pleasure because of the several distinct phases: catching the right Condiments and letting the wrong ones go (your efficiency rating drops for grabbing an ingredient you don't need); getting the Condiment to the Hamburger; running after the bun top; taking the burger to the chute; positioning yourself not only over the right chute, but making sure the Hamburger doesn't hit the sides of the chute (lest your Hamburger be destroyed and your rating plummet).

Each challenge is not so difficult in and of itself. However, taken as a whole, the game will drive you nuts.

Graphics: C

Gameplay: B+

E.C.M.: Story, shmory, this one was like lunch at Burger King: filling without being satisfying.

Pressure Cooker is, as Jim explained, an obstacle course with food. Therein lies its problem.

Remember those stunts they used to do on TV shows like *Beat the Clock*, where the contestant had to hop across the stage, carrying an egg in a spoon, going back and getting a new one each time it dropped?

That was amusing because it was focused. This isn't. *Pressure Cooker* is lively, it's cute, it's novel, it's everything a videogame should be—except that it spreads those qualities over too much gameplay. Because you're always worrying about the next stage, there's no time to enjoy the one you're doing.

Graphics: C

Gameplay: C–

K-RAZY SHOOT-OUT

CBS for the 5200

Object

A team of Space Commanders is trapped within an enemy outpost populated by evil Droids. Each room is laid out differently.

One at a time, the Commanders must face the robots, who plod slowly in your direction. Touch one and die; brush against a wall and you also perish. Your only chance of surviving is by directing your fire horizontally, vertically, or diagonally at the oncoming Droids.

Droids are also destroyed by colliding into the walls or against one another.

J.C.: An entertaining game of the *Berserk* school. The higher you advance, the faster and more deliberate the Droids; the maze-walls in each room change from screen to screen and game to game.

The graphics are sparse, though I liked the little pirouette the Commanders perform when they die. I was also impressed by the easy maneuverability of the weapon.

No new ground is broken; this is just a fun, if ordinary, maze-shoot.

Graphics: C+

Gameplay: C+

E.C.M.: When Jim refers to *K-Razy Shoot-Out* as belonging to the *Berserk* school, he's understating the case. Being a member of a school connotes following basic principles, but having some measure of individuality.

In case you haven't guessed it by now, both games are virtually identical. So much so that I can't see any reason for CBS to have released this cartridge, unless they intend to undercut Atari pricewise.

It's no better or worse than *Berserk*, which means it's a fast, steady-nerves game. I suggest you flip a coin on this one.

Graphics: C

Gameplay: B

SLITHER

Coleco for ColecoVision (packaged with Roller Controller)

Object

Your ship has landed on a world of angry prehistoric animals. With your guns firing straight-up or straight-down, you have the ability to maneuver anywhere on the desert screen—and so do the monsters.

Short and Long Snakes slither from the sides, splitting when hit. There are also Invisible Snakes—you can see their eyes—Tyrannosaurs, and Pterodactyls.

Adding to your troubles are clumps of Brush left behind by the Tyrannosaur. These must be shot away or they impede your freedom to move about. The boulders also get in the way, though there's nothing you can do about them.

E.C.M.: If ever there were a cartridge which allowed for a one-to-one showdown comparison of ColecoVision and the Atari 5200, *Slither* is it. With the roller controller, it is a virtual carbon of *Cen-*

tipede and the 5200 trackball.

Who wins? Atari, and it's no contest. Comparing the response time of the gun in *Slither* to *Centipede* leaves much to be desired. It's like heaving water-filled balloons as opposed to firing a machine gun. Not only are the guns slower, but they are less surgically precise: the Snakes lose segments in big fat chunks as opposed to the bit-by-bit decimation of the centipede.

Nor does the Pterodactyl move with nearly the same fluidity and dogged menace of the *Centipede* Spider.

Indeed, even as an adaptation of the arcade *Slither*, this cartridge falls far, far short of the fidelity of the Atari *Centipede* game.

Lucky for Coleco they're giving this away with the roller controller. I'm not saying this is a total washout—you *can* pivot the gun to different positions, which makes for a slight variation. But I expect innovation for my dollars, not variation.

Graphics: C

Gameplay: C

J.C.: E.C. has reached a new depth of inanity with her review. True, *Slither* is not as viciously satisfying as *Centipede*. If rapid-fire blasting is the only reason you buy a game, *Centipede* remains state-of-the-art.

But then, *Centipede* hasn't the vivid colors and detailed graphics of *Slither*, nor, if we're getting nit-picky, does the Centipede squirm and worm about the screen in as realistic a manner as the Snakes. *Slither* has permanent obstacles in the boulders; *Centipede* does not. *Slither* has Snakes which not only move left-right, but up-down as well. And the ability to fire in a direction other than *up* makes for more fun than E.C. seemed to have.

Finally, if gameplay isn't *quite* as "surgically precise" as in the Century II arcade game, ninety-nine percent of the players won't notice, care, or mind.

If you have the luxury of owning both systems, and already have *Centipede*, I won't suggest adding *Slither* to your collection. In a purely empirical sense, the games are similar enough. On the other hand, all of this is really academic. Since *Slither* comes with the roller controller, and you'll *definitely* want that, buy the whole shebang and have a good time.

Graphics: B

Gameplay: B

(Note: a complete guide to conquering *Slither* can be found in our fifth issue–April '83.)

JOUST

Atari for the 2600

Object

Astride your winged mount, you jab repeatedly at the action button to flap faster and, hence, higher than your opponent- or computer-controlled airborne warriors. Descending upon another jouster wins the player points and causes the other character to vanish, replaced by a flying egg. Grab the egg before it hatches and additional points are earned.

Various hovering plateaus scattered around the screen allow each player to land or, adversely, prevent him/her from zipping straight

up and grabbing an egg.

J.C.: Atari has given us one of the few games for the 2600 which will delight fans of the arcade original. The only appreciable difference is in the changed dimensions of the playfield (wider than taller).

The sense of being airborne is remarkable, especially the feeling of *losing* speed and height when you let up on the action button, or collide with a plateau.

Playwise, the characters are incredibly responsive to the controls. They may be as detailed as their arcade counterparts, but you won't mind. The sound effects are excellent.

Original and great fun for solo games or two competing players, *Joust* is a must-have cartridge.

Graphics: B-

Gameplay: A-

E.C.M.: *Joust* isn't my favorite arcade game. I love the fantasy theme, and the realistic avian touches in the animation. But, still, it never did anything more for me than watching bees buzz around a garden. Fantasy, to work in literature, movies, or videogames, must create a total environment, an ambience, which *Joust* never did.

Since I have always been admittedly snobbish in my approach to *Joust*, I shut down my brain when I played the 2600 version and had a good time. I still would have liked to see more texture—bigger birds and a scrolling, more detailed screen would have done it for me—but, given what *Joust* is, no one could have done a better job bringing that game to the home screen.

If, like me, you want ambience, go back and read the *Joust* history in issue #5 (April '83). If you want a good game, look no farther than this Atari cartridge.

Graphics: B

Gameplay: B

MICRO TAKES

Battlezone

Atari for the 5200

Object: Guided by radar, you plow your tank through a surreal landscape of hills and geometric impasses, hunting down and blasting enemy vehicles before they destroy you.

J.C.: An ambitious failure. Opting to try to recreate the vector graphics look of the arcade game Atari has created jerky animation and stilted gameplay. The fact is that your projectiles travel just too slowly to make this an entertaining game. **D**

E.C.M.: I concur with Jim. The 2600 version is better because, graphically, it went the traditional moving-Colorforms route rather than gunning for line-animation. The turret responds well, but shooting is a sluggish, frustrating procedure. **D.**

Pengo
Atari for the 5200

Object: Pengo the penquin is being chased around the screen by scary Sno-Bees. His only chance of surviving is to crush them with blocks of ice which are scattered over the field.

E.C.M.: *Pengo* was a surprise flop in the arcades; hopefully, Atari will fare better with this exceptionally faithful home adaptation. The 'maze' of ice blocks, which you're constantly changing, make this unique and challenging. **A.**

J.C.: Good family fun, though I've always found that the freedom to change the course by shoving blocks around deprived *Pengo* of the desperation and strategy essential to maze games. A fine adaptation of a so-so game. **C.**

Victory
Coleco for ColecoVision (roller controller required)

Object: Lift off, fly through space, rotate your guns 360 degrees and, with the help of a radar scope, blast every enemy ship you meet. Gameplay includes Shields, refueling stops, super bombs, and other staples.

J.C.: One of the truly mobile space games, *Victory* gives you unprecedented control over thrusting, direction, and firing. The best attributes of Odyssey's *UFO* and the arcade *Defender* make this a definitive cartridge. **A.**

E.C.M.: Though I'd give the two-control action of the 5200 *Space Dungeons* an edge, *Victory* and the roller controller are indeed impressive. The next step up for those who are tired of Coleco's own *Cosmic Avenger.* **A–.**

NEXT ISSUE

Our dual reviewers, E.C. Meade and Jim Clark, will take a look at two new offerings from Sega: adaptations of the arcade hits* Congo Bongo *and* Buck Rogers Planet of Zoom *(both shown above).

In* Congo Bongo, *the player must avoid coconuts and mischievous monkeys in a quest to wipe the smile off a sweetly villainous ape.

In* Buck Rogers, *the player is challenged to navigate past surface gates while battling alien saucers and the ever present Mothership.

IBM'S PCjr

The Peanut Comes Out Of Its Shell

By Steve Springer

The PCjr: keyboard and disk-drive-equipped system unit.

If you want to get attention, whisper.

Coleco didn't. Almost as soon as the first presentable prototype of their Adam home computer had been constructed, they displayed it at June's Consumer Electronics Show in Chicago. Subsequent steps in getting the system ready to ship, such as fine-tuning the tape memory drive and revising the projected release date, were made a matter of public record. All of which got people talking about the Adam. But with no room left for speculation, people soon ran out of things to say.

Ah, but IBM. Regarding their own entry into the home computer field, rumored since last summer, they played mum. Industry observers knew that a system code-named the Peanut was under development. But IBM would say nothing about it—would not even confirm its existence—and remained resolute right up until November 1, when they officially announced the PCjr.

In remaining tight-lipped, IBM fueled a round of rumor, of debate, and of speculation—both intellectual and financial—that pervaded every sector of the computer industry. Peanutmania filled columns in daily newspapers and national magazines, dropped stock prices and cleared computer store shelves, and generated more publicity than IBM could have purchased for many millions of dollars—all without venturing a single twenty cent stamp for a single press release.

Not even the release of the official press kit stopped the rumormongering. In fact, the surprise announcement that the system long referred to in the press as the Peanut would

A completed PCjr system might include printer and monitor. (Anthony Perkins lookalike is optional.)

be called the PCjr spawned the best story of all, an exciting post mortem spasm of Peanut pre-publicity.

Word had it that when the PCjr was first conceived, IBM high command gave the project several distinct code names. A different name was told in confidence to the high-ranking members of several different divisions: one heard Peanut, one Pistachio, one Prickly Pear, etc. All this, because IBM hoped to zero in on the source from which previous press leaks had sprouted. When Peanut appeared in the headlines, the story goes, the unit that had been told Peanut was nailed to the wall.

An IBM source denies the above: the PCjr went under several different code names over the course of its development, but changing code names is standard procedure at IBM. It helps to confuse the press when inter-office memos become extra-office memos.

But with the Peanut at last out of its shell, the time for confusion and mystery is over. (Yes, we said Peanut. After this many months, the name is sure to stick and be used interchangeably with PCjr.) Many of our readers have put off their initial home computer purchase, waiting to see what IBM's entry had to offer. Before concluding whether or not the PCjr was worth the wait, a cold, unbiased examination is in order.

HARDWARE

When the PCjr comes available (IBM says that will be in the first quarter of 1984), you will have your choice of two packages. The Entry Model consists of system unit with 64K user memory and two cartridge slots, keyboard, audio tone generator, and desktop transformer. The Expanded Model adds an internal disk drive and an additional 64K memory and display expansion (eighty columns, instead of the Entry Model's forty).

The keyboard is cordless, operated by batteries and transmitting keystrokes to the system unit via infrared signals at a line-of-sight distance of up to twenty feet. A six-foot cord is available, and necessary when using more than one PCjr in a room. The sixty-two keys can be programmed individually, allowing you to tailor them to your own needs (letting a particular key, for example, stand for a series of program steps). To this end, the keyboard has been left blank: you will have to purchase overlays.

The 360K diskette drive can of course be purchased separately to add to your Entry Model (as can the 64K memory and display expansion). Fully self-contained, it consists of spindle drive, read positioning, and read/write/erase systems. It utilizes both single- and double-sided diskettes.

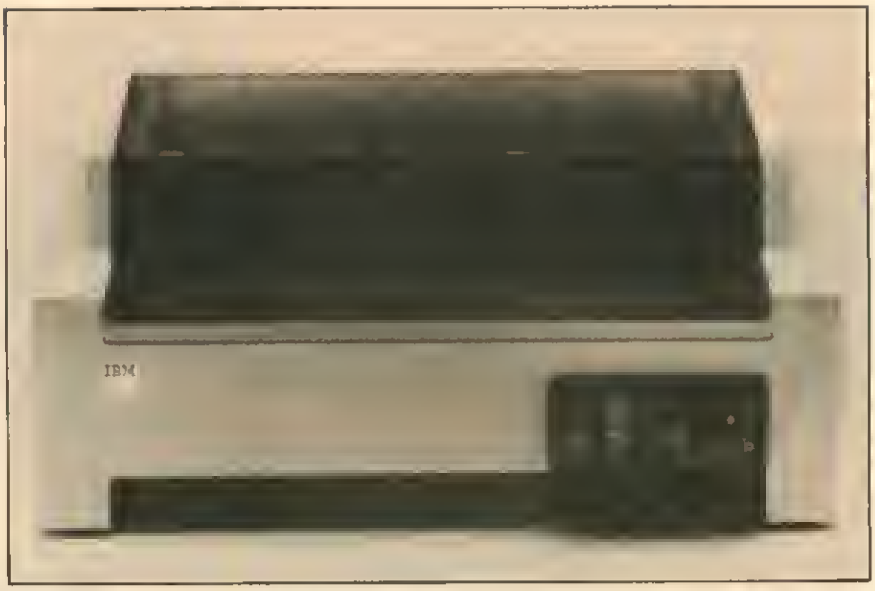
A host of other peripherals will come available simultaneously with the computer. Sure to rank among the most popular are an internal, asynchronous modem with auto dial/auto answer, and a 300-bit-per-second data rate. Others include compact and color printers, joystick, and the usual assortment of cables and connectors for parallel printer, TV, color display, cassette player, serial devices, and the like.

The system contains a 16-bit microprocessor, powerful by home computer standards. Performance is also improved—and size and weight lessened—by use of microchip technology that eliminates some adapter cards. Game controller, serial port, light pen interface, and color graph-

ics capabilities, for example, are all located on the main circuit board.

Perhaps the most important bit of "inside" information is that the unit utilizes the new IBM Personal Computer Disk Operating System (DOS) 2.1, making the PCjr compatible with much of the software written for the IBM-PC.

What, then, can consumers expect to pay for the PCjr and selected peripherals when the entire lineup becomes available in March? ("What would you expect to pay? $1000? $2000? Wait, there's more. . .") The prices listed on the chart following are those which IBM will be offering at their Product Centers; prices will vary at independent dealers.



Above: the new IBM Personal Computer Color Printer (announced with the PCjr, but not compatible with it). Opposite: IBM Compact Printer, which can print up to fifty characters per second on heat-sensitive paper.

IBM PCjr AND PERIPHERALS

DESCRIPTION	PRICE
Entry Model (64K user memory, two cartridge slots, cordless keyboard, and desktop transformer)	$ 669
Expanded Model (128K user memory, diskette drive, two cartridge slots, cordless keyboard, and desktop transformer)	1269
Diskette Drive (360K)	480
64K Memory and Display Expansion	140
Internal Modem	199
Parallel Printer Attachment	99
Attachable Joystick	40
Keyboard Cord	20
Keyboard Overlays (five)	10
Connector for TV	30
Adapter Cable for IBM Color Display (5153001)	20
Adapter Cable for Cassette	30
Carrying Case	60
Adapter Cable for Serial Devices	25
Compact Printer	175
Compact Printer Adapter	40

To answer the question of what a completed, ready-to-run system might cost: if you opted for the enhanced diskette model with a connector for TV, compact printer, DOS 2.1, and Cartridge BASIC, your cost would be $1,614 at an IBM Product Center. You'll also need keyboard overlays and thermal paper.

SOFTWARE

A good amount of software will be available simultaneously with the release of the PCjr. There are a surprising number of games in the roster, considering that it is a business-oriented machine.

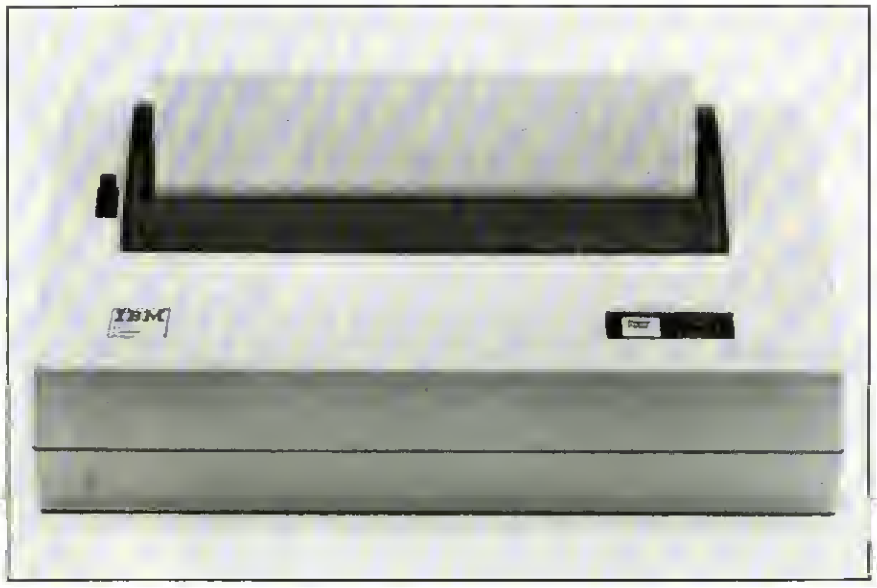
• *BASIC*, in two forms: cassette and cartridge. Cassette BASIC is provided with each computer in the form of built-in ROM. It provides cassette tape recorder input/output instructions and support for display, keyboard, printer, light pen, joysticks, and many functions such as editing, logic, match and string functions.

Cartridge BASIC is optional in the form of ROM built into a cartridge. This BASIC extension to the language provides instructions, commands and built-in functions, most of which can be used with or without DOS present.

•*IMB-PC Disk Operating System 2.1.* This is an enhanced release of DOS 2.0, and has the same functions and storage requirements. DOS 2.1 supports the IBM-PC, the PC-XT and the PCjr.

• *Home Budget, jr.* will help structure a household budget by allocating income to categories of spending. Irregularities can be highlighted as month to month or year to year status reports are displayed or printed.

• *Homeword* is the word processing program covered in this issue's Eye On section. The accent is on user-friendliness. From Sierra On-



Family fun: Junior on the PCjr.

The PCjr runs many programs that help to develop math skills, directional concepts, and word association.

Line.

• *Turtle Power.* The popular Logo programming language for children, which allows the youthful user to create geometrical shapes and pictures based on logical commands. Little or no instruction is needed

• *Adventures in Math.* The child is challenged to explore a castle and find treasure. The obstacles? Problems in addition, subtraction, multiplication and division on six different skill levels.

• Animation Creation enables the user to create animation sequences on a color display which can then be saved on diskette.

Continued on page 37

PREDICTIONS '84

By Tim Moriarty

With this, our first issue of the new year, we at *VCI* hope to attain equal status with such honored journals as *The National Enquirer* and *The Star* by daring to predict the future catastrophes, triumphs and technologies in the videogame and computergame fields.

In those areas, surprises and new directions are an everyday occurrence. Basing predictions solely on current trends will, we know, lead to error, embarrassment. Therefore, in addition to reading between the lines of news releases and industry forecasts, we carefully scrutinized the alignment of the stars in the winter skies, the arrangement of bones tossed in a pentagram, and the disposition of the entrails of a newly slaughtered goat—all to arrive at our Predictions '84!

Odyssey and Mattel will strike a blow for democracy! Odyssey's Command Center (Odyssey 3) and Mattel's Aquarius computer, among others, are currently being marketed in western Europe. From there, it is only a black-market-stone's-throw to the eastern European Bloc countries, and from there to the motherland herself, Russia.

Already, videocassette recorders, designer jeans and rock 'n roll records are hot items in Russia's thriving black market. Computers and videogames are destined to be the next peaceful salvos in the cold war.

The Odyssey unit and Aquarius will be smuggled (with no help or approval from the parent companies, of course) into Russia along with Atari 2600s and the like, further eroding the Russian peoples' contentment with their repressive economic/social system, newly awakening them to the decadent western pleasures of *Burgertime, Killer Bees* and BASIC.

Laser Pinball! Laser pinball games will begin to make their appearance in arcades in the latter part of the year. Picture a rear projection, coffin-shaped TV, with laserdisc capability, on its back. The player will propel a ball, which acts on a principle similar to a light pen, on a graphics field. Alternately, the entire board or certain areas of the board will change as the player ignites designated play areas, continuously forcing a new strategy.

With the ball's trail visible, activities will involve plotting complex trajectories and occasional mid-course corrections, containment, and trail-blazing. Tasks and strategy development will be timed, allowing the player thirty seconds to complete a task, then twenty seconds, and so on. Sound effects will be un-pinball-like, and electronic music will also be employed. And the graphics? Stunning, dreamlike, hypnotic.

Commodore will cut prices! This is history as well as a prediction. The retail price of the Commodore 64 will continue to fall through the year, bottoming out at $99 by Christmas. In June, Commodore will announce a relatively low-cost 128K computer in an uncharacteristic attempt to capture a portion of the high-end market.

Electronic Boardgames! This concept has been tried and has not as yet gained wide acceptance, but a few new wrinkles should make it fly. Milton Bradley, Parker Brothers and NAP, former purveyors of this brand of entertainment, will be shouldered out by a new company.

The board, essentially a light box with a simple microprocessor, will remain a standard. Templates over the board surface, in collaboration with a simple software format (cassette tape or wafer) will drive each individual game, purchased separately. Cards, pieces and documentation will also be included. The pieces, with magnetic bases, will be moved automatically, perhaps several pieces at once, interacting, and hazards such as ill weather, the stock market, or magic spells will come into play, depending on the game's theme.

Companies to watch! Sente. Under the leadership of Nolan Bushnell, this company's first releases will be a knockout. Game hardware leadership will come from Sente for years to come. Already the company is rumoredly reducing the costs of coin-op game hardware. Their home games should be equally underpriced and innovative. These sentiments basically echo those of the entire industry; the high expectations may well create a 'so what' reaction.

Electronic Artists. One of the first releases from this company, *M.U.L.E.*, is already a best-seller. Its game designers are allowed to create without someone looking over their shoulder, so look for some startling games. Electronic Artists will join the exclusive ranks of Broderbund, Sierra On-Line and Synapse as solid computergame manufacturers.

Interplay. Judging from their initial releases for Intellivision, there is intelligence and creativity behind their game design, as well as a sense of fun. Distribution and packaging problems need to be ironed out and then...watch out for Interplay!

IBM. Just for the record, okay? All of the home computer manufacturers will adjust their strategies according to the performance of the IBM-PC and the new PCjr, which is expected to do well. IBM will be the acknowledged standard in the U.S. by 1985: its competitors will be forced to develop either peripheral devices or computers that will be compatible with the IBM machines.

A year ago this would have been a bold prediction. Now it's almost a *fait accompli.*

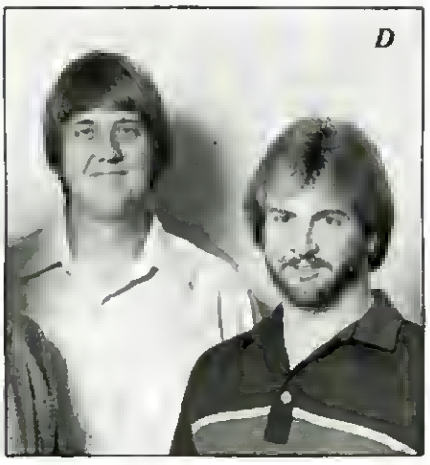
3D Helmets! Companies have been promising real 3D in home videogames, but no one has really delivered to satisfaction. Conditions of light, angle to the television set, and quality of the 3D glasses all must be perfect, and still eyestrain and dim graphics have resulted.

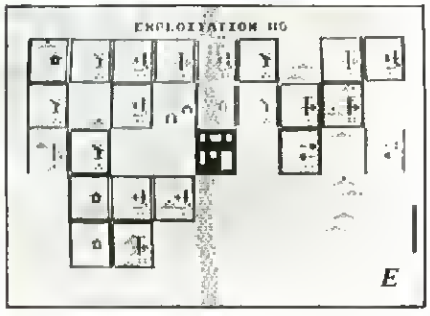
This year some enterprising company will create 3D helmets that will accept game cartridges or tapes; the games will be controlled by remote, hand-held devices. It will be a high-priced, cleverly designed item that will bomb and cause the company's collapse by year-end.

Atari cuts and runs wild! Warner Communications, Atari's parent company, will spend the entire year with its finger on the button—the button that will destroy Atari piecemeal or entirely. But the button will only be pressed once, and Atari's computer hardware development division will disappear. Three of Atari's four new computers will be completed and cautiously marketed...to no great success.

Taking up the slack, however, and becoming more and more lucrative as the year goes on, will be AtariSoft. Likewise, the videogame division will have a good year, mostly on account of dividends from the coin-op division.

Atari will surprise the videogame world with the games that result from their collaboration with LucasFilm. These coin-op games—artistic successes all—will not net the company much money, but the technologies created will be adapted, squeezed and applied to





A: Tomy's Tomytronics 3D hand-held games: crude prototype for 3D helmets. B: George Lucas, creator of* Star Wars, *examines Atari's handiwork. With help from LucasFilm, Atari should prosper. C: Mattel's Aquarius: more powerful than an MX missile. D: Activision designers David Crane (left) and Steve Cartwright. Will one of them effect Activision's graphics breakthrough? E:* M.U.L.E. *is but the first of Electronic Artists' hits. F: Sega's* Astron Belt: *bid for laserdisc greatness.

the home units (especially the 5200).

We're talking 3D-like, movielike games that will demand split-second player response; games whose graphics will generally better the laserdisc games because the graphics will have cartoon freedom, artistic contour, and an air of unreality and fantasy unobtainable anywhere else.

And look for a new type of controller to play them: a push-pull paddle controller for instant first-person altitude changes that will make the impressionable airsick.

Laserdisc fizzle! The bad news on the coin-op scene is that laserdisc games—ballyhooed as the arcade savior—will have the same hit/miss ratio as pinball games and videogames. Players will balk at continually shelling out fifty cents a crack; owners will weep at the prices they must pay for the first generation laserdisc machines.

Arcades will limp through '84, redeemed by laser pinball, three laserdisc hits, the Atari/LucasFilm collaborations, and one additional phenomenon each from Williams, Bally/Midway, and Taito.

Activision barely snuffs out the* Kaboom *fuse! Activision will see a relatively lean year as it hastily creates a new game plan in the face of a shrinking market. They will once again take the lion's share of hit VCS games, but their computergames will be so-so performers. Like most other computergame creators, they will shift their emphasis from arcade-style games to leisure utilities.

Sometime in the fall, *VCI* predicts, one of the idly tinkering Activision designers will come upon a graphics breakthrough: one that adds vectorlike depth and fluidity to the graphics luster of the raster format. In the early part of 1985, this new technology will be unveiled, with a cowl to blot out all other sources of light, and videogames will be reborn.

Coleco's Year of Living Dangerously. Coleco will sell just enough Adam computers to forestall utter catastrophe (we examined Coleco's Adam gamble in our last issue), but disaster will continue to nip at Coleco's heels throughout the year. There will be widespread service problems with their first wave of shipped Adam units and a precipitous downslide of ColecoVision unit sales...with the inevitable inventory and cash-flow problems resulting. These problems will force Coleco to abandon their laserdisc interface plans; they will settle for releasing *Dragon's Lair* in the raster graphics format, and it will be a big hit for them. In fact, software sales will be relatively strong throughout the year.

But the major saving grace will be AT&T; that corporation will deepen their contractual commitments to Coleco, helping them through the bad times, and also taking a piece of the action for themselves in mysterious and unpublicized ways.

Coleco and AT&T will expand the scope of their games-transmission service. Owners of ColecoVision and Adam will have the opportunity

to buy an inexpensive modem that will enhance the value of their machines. By virtue of the numeric controller, mail (Adam only), banking, and data sharing services will be provided, as well as the game rage of the year's end: electronic *Dungeons & Dragons* and warfare simulations, cooperative and competitive, which will be transmitted for an hour a week. Each registered player will take a specific and unchanging role. Alliances and feuds can be created between game transmissions via electronic mail, but the main action will occur during the actual gametime. Interactive fantasy *Dallas.*

The videogame industry will...will--! Our crystal ball grows dim, our goat entrails grow rank. No startling predictions on the industry as a whole will be possible; only sweeping generalizations and unanswered questions.

The essential facts. Cartridge sales in 1983 were brisk, but expectations were so high that the year is considered an unqualified disaster. We will spare you the statistics: the millions of dollars lost, the massive shift from dedicated game machines to home computers, the inventories of unsold games reaching to the ionosphere, the arcades that have closed, the companies that have gone under. The consensus among industry statisticians is that there are fifteen million videogame units sold and in American homes (sounds pessimistic to us; we think there are more). These same analysts estimate that some five million

Continued on page 72

HOME ROBOTS IN 1984

By Barbara Krasnoff

Until recently, if you asked any robot expert about the possibility of home or personal robots appearing any time soon, you would get a firm, "No way." Home robots weren't just considered improbable, they were thought to be total impossibilities, at least for the next century or so. Sure, robots were making increasingly spectacular advances on the industrial scene, and were beginning to pick satellites out of the sky via the space shuttle. But a real, working, relatively intelligent automaton that would fetch Daddy's slippers and Mommy's diskette? Forget it.

Well, apparently a few people weren't listening. During the last year or so, we have been introduced to several working home robots—and while they're not exactly up to R2D2's standards, they are certainly sophisticated enough to intrigue technophiles and interest the general public.

First, Heathkit unveiled Hero 1, perhaps the first commercially marketed home robot. Hero is a mobile platform that holds a 6806 microprocessor. It is self-powered, has limited sensing and programming capabilities, and has a working robot arm that can be programmed using a handheld "teaching" device (very similar to the kinds used to teach industrial robots their moves).

And of course, since it appeared, a plethora of new uses and gadgets for Hero have been appearing, invented by Heathkit and by its loyal fans. While Hero remains largely a robot for the hobbyist, there can be no doubt that it will continue to add to the ranks of home robotists over the next year.

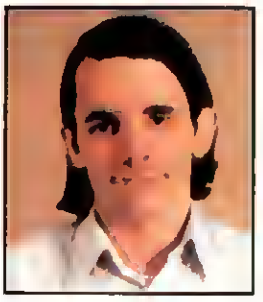
Hero--a very fetching invention.

But Hero isn't the only automaton being domesticated. Androbot, a California-based company, recently came out with a waist-high, plastic humanoid named Topo, a pleasantly simple robot which can be easily programmed through a radio link with a home computer. Topo has been very popular among elementary school teachers and other professionals who work with children for its ability to excite youngsters into learning about programming (as if today's kids needed any prodding!). Topo is going to be updated this year, and supplied with an infrared transmitter, a voice, limited sensing ability, and, most important, room for future expansion.

However, Androbot is putting its greatest effort into its new product B.O.B. (Brains On Board). B.O.B. looks almost identical to Topo, but inside its cheerful white plastic shell is a highly sophisticated onboard computer which, its makers hope, will make B.O.B. the first truly autonomous home robot. Using its own computer language called ACL (which has been formed to resemble an existing language, Forth), B.O.B. should be able to serve drinks (using a heat sensor to find your guests), become a security system, and do multitude of other fascinating chores—or so the folks at Androbot hope.

Now, Hero and B.O.B. may not be the robot of your dreams. But they have appeared on the market a lot sooner than many people thought possible—and they are only the first of what promises to be a long line of mechanical pets. Considering that both Hero and Topo made their appearances so very recently, it would be wise for technology fans in general and computer hackers in particular to keep a close eye on our little metal friends during 1984. There's a very good chance they may surprise us. After all, was it so long ago that home computers were considered not much more than interesting novelties—at best?

Videogaming Illustrated Profile:



Steve Kitchen

Interview conducted by Robert J. Sodaro

The image conjured up for most of us by the term "video space game" is a contest in the "Nuke the Alien Aggressor" mode—where you must defend against hordes of invading aliens and save the galaxy from a fate worse than death. Such games have not only enjoyed sustained popularity, but to many minds define what videogames are all about.

Steve Kitchen is attempting to change all that with Space Shuttle. *The eldest of the trio of Kitchen Brothers, all of whom are Activision designers, hatched the idea for a new kind of space game last year. For help in translating his idea into reality, Steve went to the primary source of our information about space: the National Aeronautic and Space Administration (familiarly, NASA).*

Thirteen months after he began his research, Steve has produced a game for the Atari 2600 that is awesome in scope and impressive in design. When we spoke with Steve recently at Activision's headquarters in California's Silicon Valley, he shared his thoughts on videogames, NASA, and, of course, the story of how Space Shuttle *came to be.*

VCI: Steve, *The New York Times* ran a front-page story the other day (October 17, 1983) stating that the videogame industry is dead. How do you feel about it?

SK: I know, I've heard that one before. I saw an article the other day in *Time* magazine on the subject. Unfortunately I think that many of these people don't know the industry, they just kind of take potshots at it depending on what's happening.

VCI: They see a U.S. Games, or a Data Age going under, so they think everyone's going bankrupt.

SK: Companies like that don't analyze their product line, the product mix of their marketing. There are always entrepreneurs in industries, and the entrepreneurs are there to make a quick buck and then they get out. Then there are companies (like Activision) that are in for the long term.

VCI: We feel that the industry will be around for a long while, in one form or another.

SK: Yeah, I agree. It will evolve into new and interesting forms of entertainment. Based obviously on the ubiquitous computer which is going to slowly get into every aspect of our lives. Hopefully for the good; if I have anything to do with it it is going to be very benign, very enjoyable.

VCI: Let's talk about how you first got interested in computers.

SK: Somewhere in my deep past, I don't know where, I got a computer bug. I guess the first remembrance that I have is that I was at a picnic at my parents' house. Someone mentioned something about computers and I brazenly said, "Oh, I can build a computer." The individual challenged me to. Well, you don't challenge me to do something and expect me to sit on my hands. I immediately proceeded to run out to Lafayette Radio and Electronics that day and buy every switch and cable I could find. I didn't know anything about computers or electronics at the time, but I figured this is the best way to start. I started to put together a small computer...there were actually twelve generations of it and it was known as MANIAC. Which meant Mathematical-Alphanumerical-Integrated-Analysis-Computer. The

The space station seen through the cockpit window.

thing ended up being larger than a desk. It was so big that when I finally moved out of my parents' house, in 1970-71, it was too big to put through the door. So it now resides in my parents' basement.

VCI: So it is still in existence?

SK: Well, I don't know if it's still operating, but it's still down there. Probably in pieces. My brother Dan, who is also an Activision designer, still lives with my parents, so he has had use of it, I guess. I don't know if he actually plays any games on it, though.

VCI: Were you into science fiction while you were growing up?

SK: I read a good deal of it, but I wasn't a nut on science fiction. I didn't read it all the time. I was actually more into science. Science fiction captivated me as to what the future would be like. I did a lot of my own experimentation, and my own studying into all aspects of science. I also enjoy the areas of cosmology, and physics, the study of the solar system and the universe and where it comes from. Astronomy has been one of my hobbies. I think if I look back, most every bit of science has captivated me at one point or another. I also collect fossils and rocks. I've done a lot of personal study even into the area of biology and things like that. Computers have captivated me because of their ability to transport you anywhere you want to go. They're a cross-disciplinary science, and you can use any of the other sciences to help you along. So I built this MANIAC computer and really cut my teeth there.

Actually I didn't really get into computers as a business function for a while. I then went into business, designing hand electronic calculators, which in those days were really dedicated chip devices, they weren't really computers. I did a lot of new work in that marketplace, the first scientific calculators, the first programmable calculators back in '71-'72. Then I got into other devices, digital clocks, digital automotive instruments, and somewhere around the 1976-77 time frame I had a Christmas party, and I had some young children over. I didn't know what I was going to do with them, so I gave them one of my little pocket calculators and a little book of math games on the calculator. I thought that this would get them out of my hair for awhile. They got totally intrigued hy it, and it got me thinking, you know, somebody should make electronic devices, hand-held, for kids to play with. So I realized that there was a big market for electronic games. They didn't exist at that point. Mattel had yet to bring out its hand-held game line. So I began to think along the lines of electronic games, basically leaning towards the heavily graphic sort of system with a little screen, where people would do things with lights. I sold a product to Parker Brothers, which was called the Wildfire Pinball game. They came back and said, "Excellent! Great! Now we want you to design it, build it, and program it." At that time my brother Gary was working for me back in New Jersey. We sat down and got out a manual on four-bit single chip processors and designed the program. That was really the first production program that we did entirely. And that's how I got into programming.

VCI: So you designed these hand-helds for awhile.

SK: Those were electronic games, which were Wildfire and Bankshot. After that I felt that the market was going to evolve into better systems. I've always been leaning on the graphics, and of course the VCS type of game always captivated me, because that was pure graphics. You coutd really excel. So then I got into programming the 6502, which is the microprocessor in the Atari VCS. My brother and I did work for another videogame company for a short while, something like six months or a

year. Then Gary came onboard Activision, Dan came onboard Activision, and shortly thereafter I came onboard Activision.

VCI: It's a real family operation, then?

SK: Kind of. We keep running into one another. One of us always leaves the path, and the others always follow. I started oll first in electronics and computers, and brought Gary and Dan along, then they moved to Activision and brought me along.

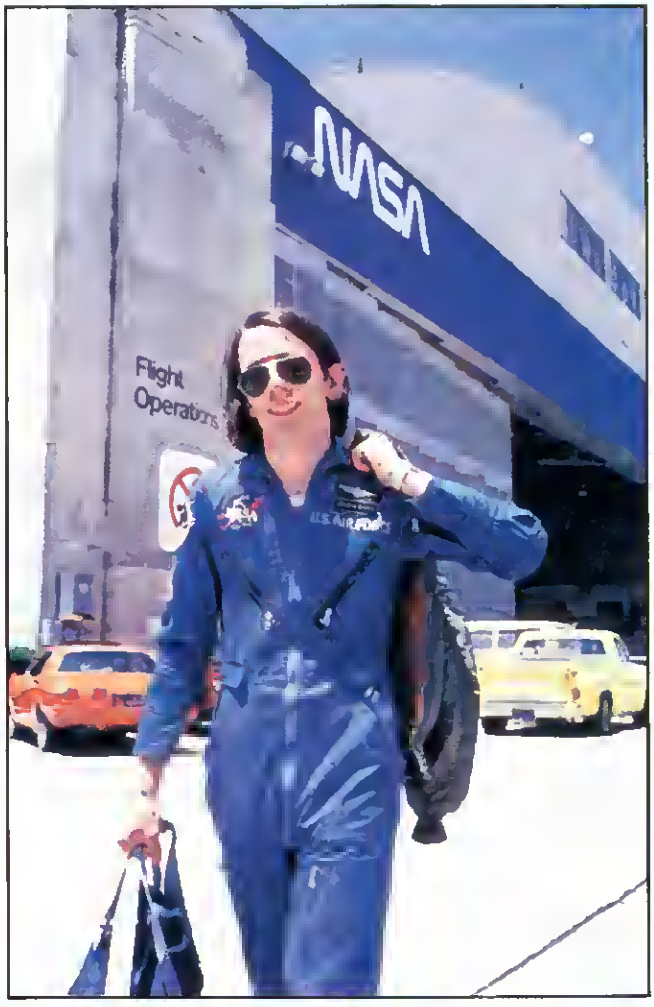
VCI: So this is the first game you've designed for Activision.

SK: Yes, I came onboard Activision in August of last year. That's when I proposed that I do a space shuttle type of game, and I've been working on it ever since then. It's not the kind of game you do in two or three months. This game took thirteen months of hard design and coding.

VCI: What was the reason you decided to deal with the space shuttle?

SK: Well, the history of *Space Shuttle* goes back to before I joined Activision. It goes back to two-and-a-half years ago when I was doing some consulting for a company that was doing some work for the U.S. Government. In one of the discussions that I had with some government guy. I think it was in April of '81, we talked about outer space. I've always felt strongly about the space program and NASA. People just don't understand why NASA has to spend this money to send people up into orbit, or send up satellites, or whatever. We actually get an awful lot of byproducts from space; the problem is that people feel that the space program is not a part of them. They can't connect to it. The space shuttle, which was just going up then, was always something esoteric. It was always something far out, really, to a lot of people. They couldn't understand it. So I said somebody ought to commercialize space. Somebody ought to do something. And he put it on me that, being an inventor and a designer, it was really incumbent on the inventors and designers of the world to do it. So I thought about it for a couple ol months and in July of that year I was talking to somebody else. He said, "You know, it's disgusting that if you design a toy it gets more play than something NASA invents." Then it clicked on me, a videogame based upon something that deals with space. Of course the logical thing that occurred to me after that was a space shuttle game. So I proceeded then to determine that I was going to design this game. Something based on real life, something where reality was the key.

Like any artist or writer I had to study my subject. If you're writing a book based on fact you have to go out and learn everything you can about it to try to understand what you basically have, to rewrite or distill down to the level ol the reader. I had to do the same thing. I contacted NASA, and their public affairs people, and bugged them for about a year to get information and materials. I attended three launches and of course the landings at Edwards Air Force Base. I got from Rockwell International their huge manual on the internal workings of the shuttle, down to individual blueprints of the wing section, the tank section, and whatever. I studied, for over a year, all of these little tidbits: how you fly, how you train, what you do.



Kitchen in flight gear, and invading NASA's space.

VCI: How did NASA receive the idea when you first ap-

proached them?

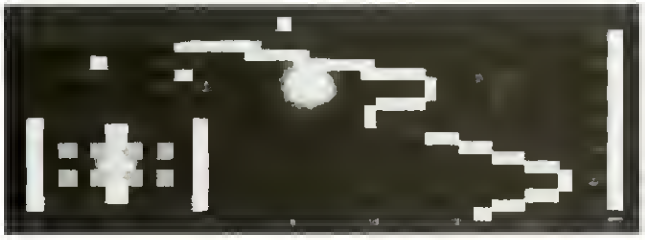
SK: The PR people said they'd send me some stuff. But they didn't really know who I was because this game was for the market and they were with the aerospace industry. But I think after persistence and after they understood more of what I was trying to do, they started to assist me quite a bit. It took them a little while to come up the learning curve to realize that I wasn't trying to do a game where the space shuttle would do something unnatural. It was more of a training game. After three or four months they were excellent.

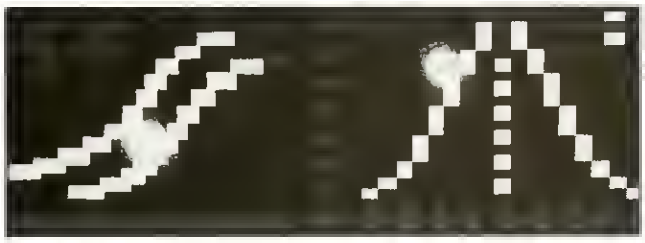
VCI: So they gave you a lot of help on it.

SK: Yes, anytime I needed materials, they would send them. Of course all of the material is public knowledge, but most people don't realize that. I have four binders full of materials they sent me. I also went to the library. I went to Houston Space Center and talked to people down there. I went to Washington, and Kennedy Space Center, Edwards Air Force Base. I wanted to actually see each of the places that were involved, talk to the people. Try to understand the experience of the shuttle. Along the way I discovered that the kind of shuttle game I would want would be a complete shuttle mission. Not only would it be an exciting and realistic game, it would also, to some extent, allow people to learn while they're enjoying. Not educational per se, but educational in a vicarious manner.

VCI: You designed the game for the Atari VCS system. Why? Why not one of the supersystems?

SK: I originally thought I was going to do it on a home computer, because I figured that I would need the power of a home computer to do this. I didn't really think that a VCS would be able to do a good job. But just like any author, I want my work to be published and reach as many people as possible. There is really no one system that is predominant in the marketplace at the moment. You could talk about half a dozen systems and each of them has an important niche, an important number of units out there. But there is no system that anywhere near touches the Atari VCS





Radar screen depicts Space shuttle's re-entry path.

Space Shuttle Columbia taking off, April 12, 1981.

penetration of the market. The problem was, could I do the job on the Atari VCS which kept the quality, and kept the heart of what I wanted to create. Activision really challenged me by saying, "Why don't you try to do it on the Atari VCS?"

VCI: So you didn't meet any resistance there by someone telling you to do it on one of the bigger systems.

SK: No. Understand that Activision believes that the designer should be both the designer and programmer of his game. And if he sits down and tries to do something that no one else has done, well, more power to him. That's how Activision has kept its position on the market, by always challenging the system. If I were to sit down and do a game that was fifty times as complex on the VCS, the answer would be "great, good luck," and everybody here would be rooting for me. And that's really the way you expand the market. Take a look at all of the advances in the Atari VCS programming. The games this year are heads and tails above the VCS games of last year, and of course the year before. Why? Because people have taken the machines, and challenged them, and made them do things that people originally said were impossible.

VCI: That's right, the early Atari games like *Pong* and *Combat* had very sparse graphics.

SK: You remember that the graphics were astounding back then. I remember when I saw the first Atari tank game I said "Wow! Amazing!"

VCI: How did you manage to get in all the graphics that are in *Space Shuttle*?

SK: To some extent, through trust in myself in my ability to figure these things out. After it was suggested that I do it on the VCS and I thought for a little while, I figured, yeah, there is enough capability, that if I design it carefully, I can do a good proper job. It was really a matter of a lot of creative design; a lot of planning. The game was very carefully planned out, all of the features

Columbia waiting to be hoisted to rocket boosters.

and functions are carefully planned to integrate. The biggest problem that I had was not the graphics really, it was the problem of the switches. I had to do a lot of things on that machine, I had to have a lot of control, just like the real shuttle does. The real shuttle's cockpit is literally crammed with thousands of switches. On the VCS we have no keyboard, the joystick has only four directions, a red button, and really about half a dozen switches.

VCI: How did you make the switches do something that they were not designed to do?

SK: I made them intelligent. I made the switches provide different functions at different times, depending on where you were in the game. For instance, the game select switch provides the normal select function for the game when you're in the demo mode, which is when the earth is rolling by and the Activision logo is scrolling. However, when you're in the middle of a game you no longer need to select a game, but what you need now is your information, your status. So I made it then an intelligent status switch, and even intelligent to the point when you press the button if you have anything up on the screen but the normal status information it will automatically return to the speed. Each time you press it after that it will give you information in its importance level. For instance speed is the most important, then altitude, then fuel, then your mission elapsed time, and finally the status of all the systems in the shuttle. So it's intelligent from the standpoint that it provides information sequentially in the manner that you need it. Then when you're doing your orbital movements the joystick picks up the X,Y, or Z coordinates, if you're using them. Just by pressing the joystick in that direction, it realizes you need the information and puts it up on the screen. The color/black and white switch doubles up for the engine switch; on launch it turns on the main engines, but when you're in orbit, you don't have main engines anymore, so it automatically switches to control your RCS engines. When you're coming in for a landing the red button, which normally provides what is called your OMS burn in orbit, or the thrust burn in launch, now selects between range and altitude.

VCI: That seems like a lot for a player to pay attention to at one time.

SK: Remember, it's automatic and sequential. You don't have to worry about what the red button does in orbit because the machine knows what to do. You don't have to change anything while you're coming in to make the button display your altitude and range. By being automatic a lot of it is transparent to the game player.

VCI: This is a one-person game, then.

SK: It was originally designed to be a one-person game but I found that people enjoy playing as a two-player team. One's the navigator and one's the pilot. In fact, when we were doing the play testing on it, it was really a lot of fun when one person provided the intellectual input, such as, "You're too high for the satellite," "You're too far to the left or right." "Let's do an OMS burn, here's how you do it." And the other person actually does the movements on the joystick. It was really enjoyable, you really felt as if you were a team, and of course when the space shuttle flies it normally does so with a pilot and a navigator.

VCI: Are you going to consider upgrading the game for the other systems?

SK: Well, considering the fact that I just finished with it, I'm taking a slight vacation. The game hasn't really even hit the market, and won't until the tail end of this year. At that moment in time a decision will be made as to putting it on other systems. A good guess is that if it is a successful game Activision will upgrade it as they have with other games such as *Kaboom!* and *River Raid*.

VCI: Will you then be able to put more functions into the game?

SK: On a big computer, yes, you could put in more functions. But you have to realize that I didn't leave anything out. In this game, when I finally got down to the point of cramming it all in, I didn't take anything out that I really wanted. Things that I had wanted to put in I left in the game. Every aspect of the space shuttle mission actually is in the game.

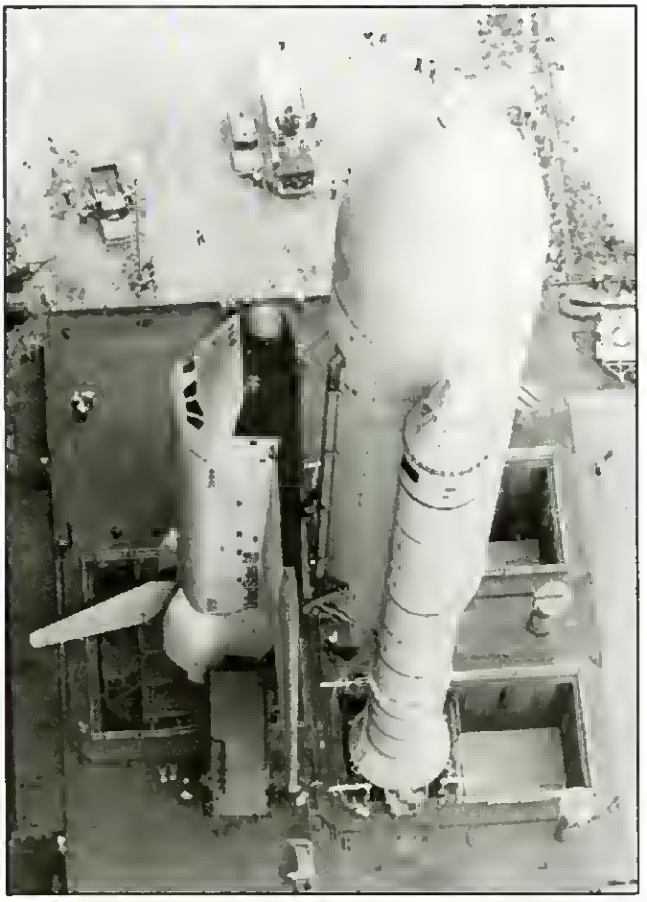
VCI: How accurate is the game?

SK: As accurate as is possible on the machine. There is nothing in the game that is not in the space shuttle mission. Everything that is important and generic to flying the space shuttle is included. Now there are a few areas where I took artistic license. I'll give you one quick example. On launch, the normal launch of a space shuttle takes eight and a half minutes to achieve orbit. The landing takes about an hour and a half after you do your de-orbit burn. I didn't deem it important or even good to make the poor person wait eight and a half minutes before he gets into orbit on this game. So I shortened all the times from launch to landing by a factor of ten to

one. Even in a computer version this would probably be done, because it's not truly important for you to spend eight and a half minutes controlling the thrust on the way up. Also it wouldn't hold your attention for that long. We included things in this game that most people, even people from the press, aren't even aware of. For instance, at 26.6 miles the solid rocket boosters are jettisoned from the shuttle. It's called SRB-Sep; Solid Rocket Booster Separation. And when this occurs, a bright yellow flash appears in the window. This actually occurs. It wasn't even known that it would happen until the astronauts actually experienced it. We've included this in the game. When the shuttle drops below mach one and comes in for a landing: people think, okay, there's a sonic boom, but they don't realize that there actually are two sonic booms. The first one is the shuttle dropping below mach one, the second is the chase planes that are on your wingtips as they drop below mach one. That too is in the game.

VCI: After you had finished programming the game, did you come across any unexpected bugs?

SK: Well, we thought we did. When we were done doing the kernal of the game, and we were playtesting, I got into orbit and gave the game to some people who hadn't played it before, with the instruction book. This is an easy way to see if you have a bug. They were up in orbit, and the way you normally come down, the standard operating procedure in the published manual, is to take your shuttle craft and turn it around and do what is called an OMS burn. This is the way NASA told us to do it, this is the way the manual says to do it. Well, these individuals got into space and read the part that said "slow yourself down to below mach 19," so they got to a particular altitude and did a very quick, what we call RCS, burn. Which is a slow engine burn backwards to slow themselves down, and they did it in such a quick period of time that they actually did start to de-orbit. Actually illegally, because you're not supposed to do that. When they told me they did that I said "Well, that's a bug, because you're not supposed to do that. The RCS engines, which are maybe one hundredth of the power of the OMS engines, can't do this. So I thought, I'll call my friend at NASA and find out what would really happen if we really did that, so I can make sure that the game is accurate. I called a flight controller at Houston, and relayed the story to him. The guy said, "That's not what really happens, you need the OMS engines to come down. Obviously you can't come down with the RCS engines." So he said, "Let me go and check into this and find out what would really happen. We'll run it on our simulation computer and see what it says." Next, he calls me back and he says, "We ran it on our computer and you're right. You will come down if you do an RCS burn like that. We never ran it because we never had any need to, we thought it was an OMS burn." It ends up, if you could do an RCS burn fast enough you will come down with it. And I was of course shocked. By the way, I did not take that out of the game, you still can De-orbit with an RCS Burn, if you know how. I have since read that an RCS burn is now a contingency. In case the OMS engines go out in orbit, they can do an RCS burn and come back in. I don't know if it was my game that did it; I don't want to take credit for it. All I can say is that I'm smiling a lot now.



Space Shuttle Enterprise is unveiled, May 1, 1979.

VCI: I guess this proves the accuracy and validity of both your game and the VCS system.

SK: Yeah, it kind of shocked me a little bit, to tell you the honest to goodness truth. I thought we did an accurate game, but I didn't know it was that accurate. What we did was, after I figured out all of the mathematics, and space travel, and everything that was in a space flight, I went and reprogrammed it as a simulation. The space flight is in itself so exciting and so interesting, that it's exciting and fun. I guess the mirroring of reality was so accurate that reality occurs no matter what you do. To tell you the truth, a lot of things you can do in orbit weren't planned; they just came about because the accuracy is so great.

VCI: It's kind of interesting in that the entire videogame and computer industry is kind of an offshoot of NASA and the space program.

SK: It truly is. I remember the discussions that I had way back in the beginning with NASA in July of 1981. They said even the chip inside the VCS—the 7502—is a direct outgrowth of microelectronics. Microelectronics came about because NASA had said, "We can't go into orbit and take up all those vacuum tubes, because they're too heavy."

Continued on page 74

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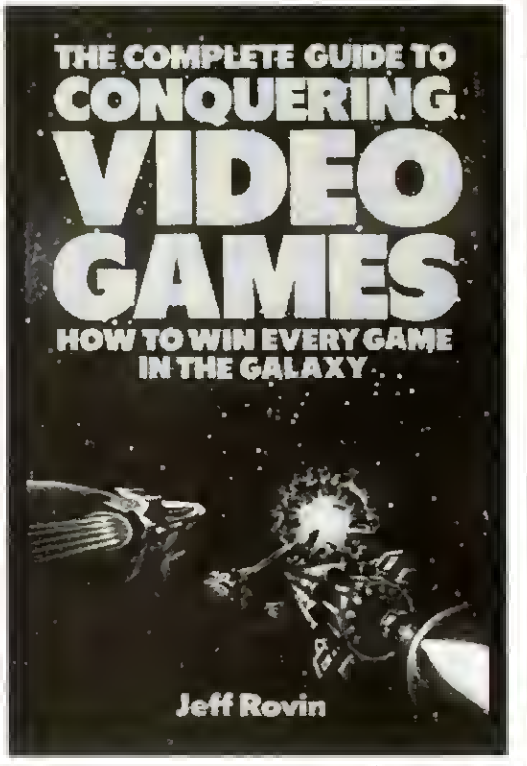

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MACMILLAN

championship videogaming

Mario Brothers

When playing this game it's better to play doubles, and work together as a team; it makes the game easier. On Phase One, both you and your partner jump to the third level and wait on either side of the platform for the turtles to come down. When they do, take turns stopping them. One of you should flip them while your partner kicks them off the ledge. During Phase Two, and higher Phases, do the same thing, only start on level two. You always should know where your partner is, and work together, or you won't get a high score.

Tom Hasiotis
Fairfield, CT

Space Duel

When playing a single player game, it is probably best to use the mode where the two ships are attached with the umbilical cord, that way you will double your firepower. Try to concentrate on one object at a time (starting with the biggest ones first). After you whittle it down, move on to the next one. As soon as the UFO appears, blow it away, or it will get you. Your shields will run out eventually, so use them sparingly in the beginning rounds. On the bonus levels try to stay to the center of the screen, and clear the board as fast as possible.

Adam Hayward
Westport, CT

Millipede

To really score high on this game, you have to clear an area in the center of the screen in the shape of a funnel, with the widest end at the bottom. This way you will have a clear path to the top of the screen, with the widest possible playing field. It's not easy to do this, but it is the best strategy.

Mark
Stamford, CT

Donkey Kong Jr.

The only thing we can say about this one is to watch your timing, and to match up with the blue jungle creatures. Try not to jump off the ropes, and don't go for the fruit if you can't make it safely. It's better to miss the last apple and make it to the top level, than to get the apple and get killed. Also you should be willing to dump about $400.00 into the game, and play it for several hours.

Robert Wolfe
Brett Worsham
Stamford, CT

Battle Zone

You don't have to destroy all of the enemy tanks. If one appears behind you at the edge of your radar screen, don't turn around, because he'll probably kill you. Wait until the last second to shoot at the buzz bombs, because you'll probably miss if you fire too soon. If a tank and saucer are on the screen at the same time, go for the tank first, then chase the saucer.

Bill Williams
Bridgeport,CT

If* Mario Brothers *is a success, it may inspire other gamemakers to create cooperative games.

POPULARITY POLL

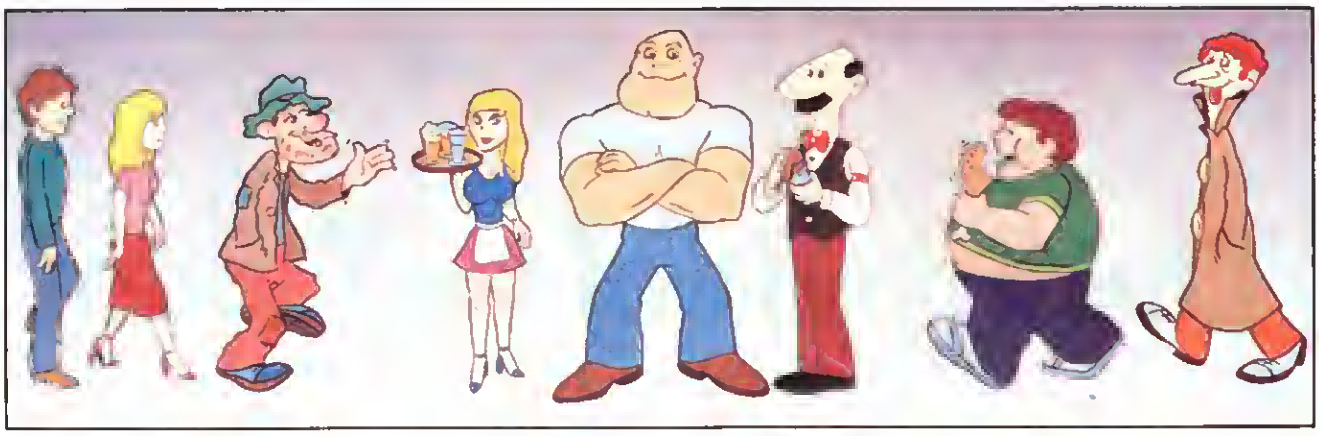
This is not a best-seller list, although sales are taken into account. Rather, it is an unscientific list of the ten most popular videogames of November, assembled on the basis of interviews by phone and in person. VCI spoke to retailers, players buying games from those retailers, and players in arcades to get a sense of which games are being borrowed, purchased, and played.

1. *Q*Bert.* Contrary to the gameplay, *Q*Bert* remains a winner by holding the top spot. Faithful adaptations for the big four—VCS, 5200, ColecoVision and Intellivision—ensure big sales.
2. *Ms. Pac-Man.* VCS-only, younger players especially seem to love this game, and its brethren. Behold the power of Saturday morning cartoons!
3. *Time Pilot.* Simple, straight-ahead gameplay does not seem to deter ColecoVision owners.
4. *Pole Position.* Surprise! Perhaps because it is available for both VCS and 5200, Atari passes Activision's *Enduro* on the road to Christmas cheer.
5. *BurgerTime.* 2600 and Intellivision owners continue to eat it up.
6. *Mr. Do!* 2600 and ColecoVision. Coleco is releasing a string of games for the holiday season . . . otherwise it would be *Do* or die.
7. *Enduro.* 2600-only driving contest is still much talked-about and enjoyed, but sales appear to be stalled.
8. *Robot Tank.* 2600 combat game lumbers on.
9. *Jungle Hunt.* 2600-only: character is the key.
10. *Centipede.* 2600 and 5200. As they would say in the movie business, this one has legs.

Bubbling near the top: *Pitfall* is still a treasure; *Decathlon* endures; *River Raid, Frogger* . . . and watch out for *Popeye* in three versions. □

The Arcade of the Future

A Plethora of Opinions Edited by Richard Meyers



The cast of choracters in Entertainment Sciences' Bouncer, all fully animated on o 3D screen.

2001: An Arcade Odyssey? Sort of. As we toiled on this "projections" issue, my own feeble concepts of future amusement parlors and Chuck E. Cheeses of the next decade paled in comparison to the visions of science fiction authors I had read and fantasy films I had watched. In one Robert Sheckley story, he envisioned an arcade that was a combination casino, massage parlor, and slaughterhouse. The player would place his private part in a hole and gamble whether it would be stimulated or sliced off.

In the Pacific Arts videotape production of The Firesign Theater's *Nick Danger: The Case Of The Missing Yolk*, satirists Phil Proctor, Peter Bergman, and Philip Austin visualized the "Happy House" with its interactive television. Using blue screen matte technology the viewers were placed inside the "Lawyer's Hospital" soap opera "where the doctors are handsome and the lawyers are beautiful."

Is this where arcades are going? Why ask me? How should I know? Instead, I asked some of the great names in science fiction the same question. Their answers, happily, turned out to be both entertaining and eclectic.

Gregory Benford (author of the award-winning *Timescape*): Actually, I've been thinking about this. You know, the real function of the video arcade in the long run will not be that much different from the neighborhood pool hall or any other social area. It is just a social focal point for a certain type of personality. The video arcade is just as valid a place to congregate and to hang out with the gang as anyplace else. Just because there are games at home is no reason for kids not to go out. The arcade experience is primarily social.

It's astonishing how rapidly the games have improved. However, they're going to reach some limit. It will get to the point where their complexity will be too vast for the real audience who goes to arcades. It's supposed to be an engrossing but somewhat superficial experience. You can't get too deep or people will turn off. While there's a fad nature to the arcade now, they will always play a role. Remember, there are still jukeboxes. There are still pinball machines and pool tables.

A million-byte real-time image processor (RIP) produces Bouncer's laserdisclike graphics.

The long range importance of the arcades is not just another socialization point. Instead, it helps to turn the generation away from totally mindless amusements. Instead, it challenges the mind, the eye, and the hand. And that's extremely good.

Vincent Di Fate (award winning artist of space technology and the future): First, I'm glad you thought of me. Second, I don't know beans about videogames. Third, it reminds me of that Dean R. Koontz novel, *The Green Machine*, about people vicariously experiencing all sorts of erotic pleasures. That seems to me the ultimate end of the videogame craze.

It won't become the massage parlor of the future, but I can see motion pictures and television becoming obsolete forms of entertainment because the videogame allows you to participate. I can see entertainment of the future being one where the viewer participates in the action; actually takes a role in the story not unlike the famous Ray Bradbury story "The Veldt."

I don't think arcades of any kind will completely disappear because ultimately people need an excuse to get out of the house. There will always be forms of entertainment you have to go to, rather than just those that come to you. But even by contemporary standards, taking your girl to a video arcade makes for a fairly tacky evening out. Instead, I think it might lead to the resurrection of the movie palace concept where entertainment is set in a classy, inspiring environment.

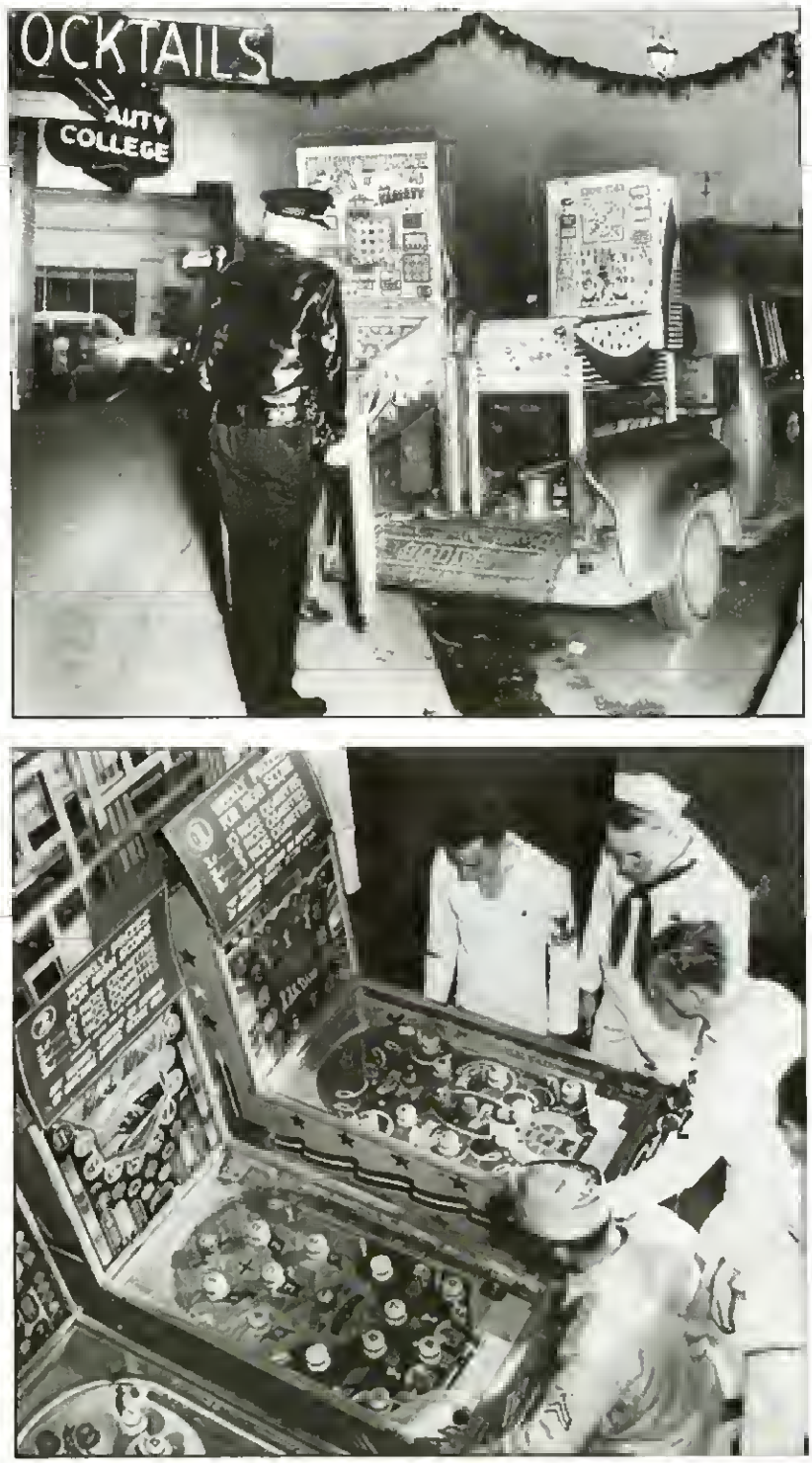
Gordon R. Dickson (the *Dorsai*

series, *None But Man, Soldier Ask Not*, and many others): I don't see how you can keep out advertising. Advertising is going to creep into the arcades. And we may see our first doggone use of subliminal advertising as well. You know, the whole explosion of arcade games belongs in the same category as the Dungeons and Dragons games. This essentially grew out of home games. It was being played on a "make it up yourself" basis before any commercial Dungeons and Dragons came out. And of course, it's a creative game.

A book is a creative game in the same way. It's black marks on white paper and people have to use their imagination to make the scenes live. This is why all the old predictions that radio and television would kill books did not come to pass. Because neither of them are the creative game a book is. But the Dungeons and Dragons game came a step closer and the videogames came a step closer.

The beauty of the arcade game is that it's there waiting for you. Although many of the people who design these games don't seem to realize it, the challenge of the future will be giving the player more tools to be creative with. Along that line will be games where the player enters right into the game. The game will become very real. We may even see an underground type of game that if you fail, you die. If you get killed in the maze, the player gets a heart attack. That's going a little far, but you can see this kind of thing coming.

The reason these games work is that they offer more in the way of creativity than their predecessors. The old pinball machines offered more skill, but the new games and future games will deliver more creative control to the player.



Brother, Can You Spare a Dime?
A blast (or is that a ping?) from the past! Oregon police seize pinball machines amid payoff allegations (1958); and sailors (what better experts at flipper controls?) compete for packs of cigarettes (1942).

Gardner Dozois (editor, with Jack Dann, of *Magic Cats* and *Unicorns!*, and author of *Strangers, The Visible Man* and others): This, of course, is going to be very rough, since you're catching me off-balance here, but my guess as to what will happen with videogame technology is that eventually what you're going to get is a booth of some sort. Probably totally enclosed. You go into it and you get almost totally realistic sound and vision effects and probably eventually even simulations of smell and touch effects. In other words, videogames will go more and more in the direction of becoming very sophisticated flight simulators. It will be very difficult to tell the experience from reality.

I figure you'll go into a booth or an egg of some sort and be surrounded by this stuff. And they'll throw various things at you. What

I'm saying is that the cheaper this simulation technology becomes, the more you'll see its use in the arcades. And it'll become harder, using your senses as evidence, to tell the difference between what you're experiencing and what is real.

In the immediate future, I expect to see a lot more stuff along the lines of the *Dragon's Lair* game. It seems to me that it's merely a rough prototype of what will be perfected and refined increasingly over the next five years or so. In fact, with computer feedback techniques, it's not really that far away that you will actually become part of the game. No one has applied this technology on an arcade level yet, but as microchips become more sophisticated and the price of sophisticated technology decreases, I think it's almost inevitable.

I wonder if, eventually, there won't be something like a sensory deprivation booth to cut you off from any other conflicting sensory signals as much as possible. In effect what I'm saying is that as the prices come down on this sort of technology, videogame arcades will increasingly converge toward the "Disneyland ride." There are a couple of things at Disney World that approach this now, except that's done on a mass scale.

I also think people underestimate the possibilities of computer animation, which is on the verge of major breakthroughs. This goes along with the *Dragon's Lair* sort of thing in that it will become easier to do what looks like expensive full animation once computer animation is perfected. Once you get a smoothly working setup where you can cheaply produce full animated action, this will then become the standard and the "stick-figure" graphics of the rest of the games will go by the board.

Philosophically, what the effect of all this might be . . . I sometimes wryly wonder if the generation that grew up, practically from the cradle, playing videogames, won't subconsciously believe in reincarnation. Because they're taught that when you meet a problem, if you can't solve it you die and then you pop up again to have another whack at it. And there's also the whole thing of the escalating levels. You conquer one level and then are reborn to take a whack at a higher level.

I really do wonder if all of this is going to subconsciously encourage the belief in reincarnation.

Philip Jose Farmer (author of the *Riverworld* series): I think we ought to bring back the old Roman Gladitorials. They're doing that in a way only no real blood is spilled and no real people are killed. We're losing the personal touch nowadays . . . ah well.

Personally I never played any. In fact, I shied away from them. I have grandchildren who are gung-ho on that sort of stuff . . . fanatics, almost. I really haven't given it much thought. But I had expected this second generation game where you have the cartoons instead of stick figures. I had already figured that out before it happened.

What we need is some sort of system where the player is slightly punished if he loses, like an electrical shock. You learn faster that way. Like rats in a maze. Losing their money in the machines doesn't seem to be enough.

That's another amazing thing. We're in the middle of a recession but somehow these kids get the money for it. I have one grandson who's nine years old, he goes out and collects bottles and stuff like that, turns them in for the deposit money and uses them in the games. He's somewhat of an entrepreneur.

I was raised in the depression and if you didn't have money for dates then you went out and got a job. So videogames may foster a sense of enterprise. Who knows?

Spider Robinson (author of *Mind Killer* and with his wife, Jeanne Corrigan, *Stardance*): It's an interesting coincidence that you called. I'm just finishing a novel for Holt, Rinehart, and Winston where videogames figure heavily in the plot. It's a disturbing little book called *Race War*. It has to do with the takeover of Manhattan Island by black militants in 1996. I'm trying to get the damn thing done while it's still science fiction.

Obviously they need secure communications. I've hypothesized that an awful lot of black people were involved in the wiring of the arcades in Manhattan. So by 1996, if you went into an arcade and were wearing the right kind of sunglasses, you'd get a different readout from the screen than an ordinary customer, you see.

Therefore I'm forced to hypothesize programmable videogames where there's a keyboard and you get to interact with the game that way. But if, as I say, you're wearing the right spectacles, you can be having a conversation with the machine while it automatically plays out a videogame for the benefit of spectators. That seemed to be a wonderfully secure communications system because it only could be tapped by someone who knew of its existence.

In general, though, I don't even know if I have an opinion of arcades, positive or negative. I know they're there and useable, but my own kid is not yet of arcade age, so I don't really have a personal reason to harbor dark thoughts about them. □

"B'wana Bill's roughing it this trip . . . black and white TVs."

IBM's PCjr

Continued from page 19

• *Monster Math.* Again on six skill levels, the child is challenged to make a monster disappear by correctly working math problems within a specified period of time.

• *Juggles' Butterfly,* from The Learning Company, is a set of three game programs which introduce young children to a computer, without the need for reading skills. Pressing keys to make pictures appear, the child will become familiar with directional concepts, lines, and certain letters.

• *Mine Shaft.* Arcade adventure as the player maneuvers a mining car around dark and dangerous mine shafts, looking for a fortune in diamonds.

• *Crossfire.* Defend the city from a swarm of insects.

• *Scubaventure.* Another treasure, quest, this time underwater. Two players can play simultaneously.

Mouser. As a farmer, the player must rid his/her house of mice by building traps with moveable walls within a given period of time.

As mentioned earlier, some software for the PC will run on the enhanced PCjr, which will expand the library considerably.

AFTERTHOUGHTS

If you are postponing a Christmas season computer purchase until after you've had a chance to tinker with a PCjr in your local store, you're playing right into IBM's Big Blue hands.

IBM spokesmen have said that the first PCjr units will be available in March, but there is evidence (production capabilities, parts availability and scheduling) to suggest that most people won't be able to obtain one until considerably after that time. Businesses—perhaps mass ordering for their executives—will certainly receive preferential treatment. And remember that IBM has not been able to fill orders for the PC. With both computers in demand, the PC will probably continue to receive priority in that division. If you don't believe that, look at the PCjr keyboard.

Rather than full-travel keys, IBM has given the PCjr rubber-like chiclet-style keys; these are fine for short-term typing, but for anyone who plans heavy programming or word-processing, the PCjr is a poor option. This, more than any other factor, confirms what many have said: IBM doesn't want sales of their PC hurt by the PCjr. For what other reason would a shrewd and powerful concern unveil regressive technology in (other than the microprocessor) a product's most crucial component?

The November 1 announcement of the PCjr—many months before it will actually appear—was cannily timed to make Christmas season computer shoppers think twice and wait, to induce them not to buy the Adam or one of the Atari XL line until they've had a chance to see the PCjr. This makes sense for those who must have IBM-compatibility. But many others will want to ask the now-traditional questions: what do I want a computer for, when do I want it, and how much can I pay?

The computer industry has been such a bewildering mess—so many companies, so many computers, so many software formats—that most consumers want to believe that the entry of IBM into the consumer end of the field will make everything simple and clear—a standard around which every other manufacturer will revolve. The industry press makes it appear that, if you don't have IBM-compatibility your computer will be useless in five or ten years.

It would be well to keep two things in mind. First, the way computer technology is moving, today's computer's probably *will* be junk in five or ten years. Second, remember that this is America, bub. There will always be room for independents, mavericks, entrepreneurs—their innovations will always be welcome. □

First, learn to program the PCjr; then, tap into* Teen Beat's *database.

WRITING IN THE COMPUTER AGE ***by Andrew Fluegelman & Jeremy Joan Hewes***

This Doubleday book ($19.95) hardcover, also available in trade paperback) is must reading for anyone planning to purchase a microcomputer, and who intends to do a significant amount of word processing. Taking the subject of writing on a computer one step at a time, the authors guide the reader through the jargon jungle that has been inflicted on the world by techies who, like the alchemists and sorcerers of old, have attempted to create their own secret language. *Writing in the Computer Age* does not tell you to buy this computer or that. But it does tell you how to choose a computer and a word processing program which will fulfill your own needs. Best of all, even the completely non-technical person will benefit from this book. Now, if by chance you are one of those who has already acquired some computer knowledge, the book will say to you, "Fine, you may want to skip chapters one and two and start where you find that the subject matter covers something you haven't learned yet."

In addition to being written in a clear, straightforward manner, Authors Fluegelman and Hewes have added another very nice touch. They describe in detail how they used their computers to write the book, communicate with one another via telephone and modem, and finally to transmit the edited manuscript to the typesetter. The book is worth every penny you pay for it, and whether you are on the brink of going electronic, or have already taken the plunge, you will be glad you bought it.

While on the subject of books about computers, a brief mention should be made of the two Peter McWilliams Books, *The Word Processing Book*, and *The Personal Computer Book*. Among the first books written in non-technical language, the McWilliams duo taken singly or together are worth reading. He approaches the subject with a kind of zany humor, which tends to humanize it, and that is good, if his cutesiness doesn't become too cloying for your taste after a while. In addition to providing his readers with the necessary basics about computers, the author provides a fairly comprehensive buying guide, which, despite the fact such an effort becomes obsolete before a book even goes to press, is still of value, because it offers practical information that can still be used. McWilliams displays an unreasonable prejudice against attached keyboards and commits only one major sin. He steals from himself by offering the identical product guide in each book, which is a major disappointment to those who buy both books at $9.95 apiece. Despite these flaws the books are generally worth the price but save money and buy one or the other depending on your primary needs.

ELECTRONIC LIFE, How to think about computers ***by Michael Crichton***

This brand new book (Alfred A. Knopf $12.95) by the author of such novels as *Andromeda Strain*, *The Terminal Man*, and *the Great Train Robbery*, is a truly nifty book. It is not only for the potential buyer and the computer novice, but for the "computer widow," and everyone in creation who has ever been bored stiff at some gathering by one or more computerniks speaking in electronic tongues and preaching the gospel of the chip and the byte.

Crichton starts out by presenting some hard facts i.e. that in 1978 there were only about 5,000 microcomputers in the entire United States, by 1982 there were in the neighborhood of 5,000,000, and estimates are that by 1990 there will be 80,000,000. In other words they are here to stay. He then proceeds to share his knowledge and affection for computers, pointing out how and why they have made his personal life fuller and easier. Although he goes over some of the territory that has been covered by others in explaining the anatomy of the computer and how to buy one, he does it with intelligence, and in thoroughly human terms. Consequently, by the time you finish the section in which he explains some of the more obtuse computer jargon, you know that when you encounter it again, you will be neither intimidated, nor put off.

Emphasizing again and again that the computer is not to be feared or hated, he reminds the reader that "At the moment, only one skill is essential to operate a computer: the ability to type."

There is much more to recommend this book, though, besides its successful demystification of the computer. Because of Crichton's natural gifts as a storyteller, he imparts a readability to his subject which makes it a pleasure to pick up, and difficult to put down. Despite the familiar territury he covers, *Electronic Life* is unique. The main body of the book, which is headed by the phrase, "Practical Matters from A to Z," is indeed alphabetized, and begins

"AFRAID OF COMPUTERS?

"Everybody is.

"The computer is a new machine. It requires new skills, new orientation, new ideas. It's changing our lives. Nobody in his right mind likes that."

At the end of Z Crichton reminds us that "our ancestors were threatened by trains and planes and electricity; we take these things for granted." He assures us that though many of us today feel threatened by computers, our descendents will not. Finally there are two appendices, one for Apple users and another for IBM users, followed by a "Grouchy Glossary," and a brief bibliography. This is one of the best books on the subject to date. □

meet the original JOUST™

By Steven Bent

A classic illustration by H.J. Ford showing Sinbad bound to the Roc.

When people think of birds, it isn't in terms of combat, but rather with visions of nests and eggs and brightly colored plumage. Yet history has shown us that birds *can* be deadly.

"I see all the birds are flown," King Charles I once uttered metaphorically while gazing around the House of Commons for some well-known dissidents he wished to execute.

His advisor, the Duke of Buckingham, leaned close and suggested helpfully that if it were *birds* he wanted to see, his majesty might ask for a chicken dinner. The incompetent Duke was murdered for his efforts.

Birds, you see, *can* be dangerous.

Most of us don't give birds a second thought. No wonder. They're not very imposing creatures, beautiful if you've the time and patience to stalk, stare and study them. However, apart from snacking on insects they do little to influence our lives.

Scientists find them somewhat more interesting, studying such diverse phenomena as how they fly and whence they evolved. (One intriguing theory is that the dinosaurs didn't die out; over the five million years of their gradual extinction they simply got smaller and sprouted feathers. You'll be reading more about the evidence pro and con in the upcoming Ion magazine *Beyond*.)

Apart from bird-watchers and researchers, those who have paid our plumed friends the most attention are the fantasists. From the earliest days of fiction, birds have been used as *Joust*-like modes of transport.

The most famous "carrier pigeon" of all time was the monstrous Roc of the Sinbad legends. Having dozed off on a remote island and missed his ship, Sinbad stumbled across an egg measuring fifty paces around. Moments later, the sky went completely black as the parent arrived. Lashing himself to the creature's leg, Sinbad hitched a ride from the island.

Though no one ever rode a Roc, there is evidence which suggests that the bird actually existed. The largest birds on earth, achieving heights of seven or eight feet, dwelt in remote places like Australia and New Zealand, where there was a dearth of lethal carnivores. It is thought that, landing here, ancient Arabic seamen spotted now-extinct giants like the phororhacos and were inspired to spin the Roc yarn. *Continued on page 46*

conquering: SPACE

Arcade Strategy Tips By Randy Palmer

Those who enjoy *Asteroids*, an industry standard, should find themselves at home with Atari's *Space Duel*, a souped-up version of the original rotate-and-shoot game.

The control panel consists of Rotate Left and Right buttons (more difficult to use than a full-direction rotation knob, unfortunately), Thrust, Fire and Shield buttons. The game also allows the option of simultaneous two-player play as well as providing each player with a single—or double—ship.

In the two-player game, a player's ship is *not* destroyed when hit with fire from his/her opponent's ship. Only collision with a space mine, rock, or flying saucer will destroy a person's ship.

If you choose to play the game with a single ship (possibly more advantageous, as described below), use the thrust and directional buttons to maneuver the ship as close to the center portion of the screen as possible. Like *Asteroids*, the *Space Duel* screens are wraparounds. Keeping your ship stationed near the center avoids the possibility that it will be demolished by a space mine which moves off one side of the screen and onto the other.

Break up the large space mines one at a time, then fire at their smaller constituents. Try to keep the number of small mines to a minimum in order to avoid crowding the screen. You *will* need some room to move about at times,

and it is easy to barge into a small roving mine.

Stars which change color when hit cannot be destroyed (although the player is awarded points for shooting them); they simply become stationary for a few moments. Remember to move around them. Don't head toward them after shooting!

Employ the shield defense whenever a *Space Duel* enemy is descending upon you and there isn't time to eradicate it. An object which touches the protective shield will push the ship away without damaging it. When this happens, reposition the ship at screen center as quickly as possible.

Whatever advantages may be inherent in selecting the double-ship option at the beginning of the game are, in my opinion, outweighed by the disadvantages. While two ships naturally give you double-barreled firepower, wait until you try to manuever both ships about the screen. It's incredibly difficult! Even such an otherwise-simple task as lining up and shooting a space mine becomes an extremely tough feat to accomplish. And because of the fact that the two ships are riding on either end of a connecting rod, there exists as well a correspondingly larger chance that one of the ships will be destroyed by a mine or saucer relatively quickly. With all of the above in mind, my advice to you would be:

Choose the single-ship mode and pretend that you're playing *Asteroids.*

DISCS OF TRON

In *Discs of Tron* the player undergoes head-to-head combat with Tron's most formidable enemy, Sark. It's not only a battle of skill, but one of wits. There is nowhere to run, nowhere to hide. And Sark seems to have all the advantages.

The playing "chamber" (a stand-up version of a cockpit-like game) surrounds the player and draws him/her into the world of *Tron*. Overhead speakers add substance to a three-dimensional illusion projected through the *Discs of Tron* video screen. The player uses a variable control knob as well as a multi-functional joystick to control Tron's movements and method of attack. The joystick moves the Tron figure back and forth along the spinning rings on which he stands. On the back of the joystick (facing the player) is a small switch which engages Tron's deflector mechanism. The front of the joystick has a trigger which is used to throw discs at the Sark character.

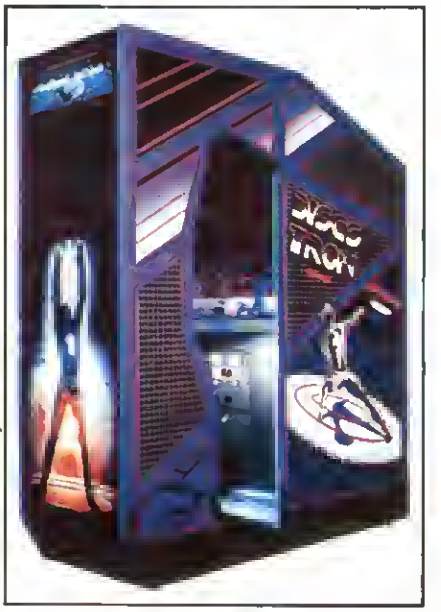
The rotary knob on the left of the cabinet positions a target spot along any of the four walls in the game. (That means it can be positioned *behind* Tron himself.) In addition, raising or lowering the same knob will manipulate the throwing plane (in later stages of the game), allowing discs which are tossed to hit high or low on the walls.

Players should first remember that Tron can fall off the rings. Move him too close to an edge and off he goes! To avoid acute embarrassment, learn how far Tron can move before he topples off. You'll notice that if he is pushed too near an edge he puts his hands in the air and stumbles slightly. Pull the joystick in the opposite direction when this happens or you'll lose face as well as Tron.

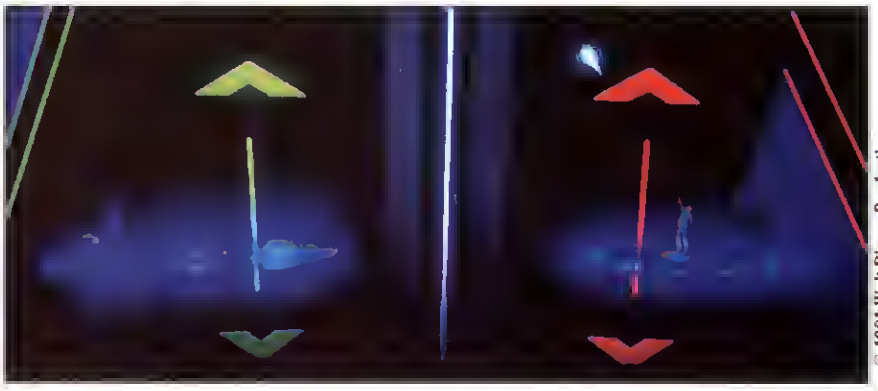
Tron can hurl only three discs at a time, but each can be thrown in a different direction by changing the target spot before each throw. Likewise, Sark can only hurl three discs at once.

Sark can be easily disposed of early in the game. As soon as Sark materializes, throw one disc to his right and another to his left. Save the third disc. One of the first two discs should hit him. If it only grazes him, throw the third disc directly at him as he teeters on the edge of his platform.

It's best to throw only two discs at a time, saving the third to knock Sark to his death if one of the first discs only grazes him or use it to destroy an incoming Chaser.



Bally Midway's* Discs of Tron, *enclosed in a cockpit-like chamber, is a masterpiece of (de-)resolution.



Scenes from the $20 million Walt Disney release starring Jeff Bridges, Bruce Boxleitner and David Warner. Aided by the electronic warrior Tron, the young computer genius Flynn battles the murderous Sark in a world inside a computer where energy lives!

Chasers and Super-Chasers (worth four hundred and eight hundred points respectively) will pursue Tron as the player moves him from ring to ring. The deflect control is useless against Chasers; they must be destroyed with a Tron disc.

Whenever a Chaser approaches, ignore Sark and reposition the target spot in an area which will cause a disc to travel straight for the approaching Chaser. Remember that the target spot can be placed *behind* Tron's rings as well as on their side. It's important to destroy Chasers and Super-Chasers without delay, otherwise they will home in and knock Tron off his platform.

If the player does manage to destroy Sark as a Chaser approaches, the Chaser will vanish as Sark dematerializes.

As more rings come into play in the course of a game, there naturally evolves a greater area in which Sark (and Tron) can move. Use the rings to your advantage by jumping Tron from one to the next to avoid Sark's disc attack. Only seven deflects are allowed the player for each character in *Discs of Tron*. (That is, each time Tron dies—or derezzes—the player begins with a new Tron and seven deflects. Also, each time Sark dies, the player's deflect count is brought back up to seven.)

The player should keep a finger hovering over the Deflect button on the back of the joystick at all times. At the same time, since the number of available deflects is obviously limited, the player should strive to out-maneuver Sark's flying discs instead of relying on the Deflect button each time a disc approaches Tron. Don't forget that Sark's discs—as well as your own—rebound from the walls. A disc which misses Tron may bounce back and hit him from behind, destroying him instantly. Keep this in mind as you move Tron from ring to ring.

Although it's easiest to destroy Sark using straight aim, many times gameplay requires the player to bounce discs off the walls to effect a winning situation. For example, at times a stone barrier appears in front of Sark's platforms. A Tron disc will bounce away from this barrier without harming Sark. On the other hand, there are no barriers to protect Tron, and Sark can and will throw direct discs. The player has no choice: the disc must be caromed around Sark's wall, off a side wall.

A disc can never be guaranteed of hitting Sark; remember that he can jump from ring to ring, just as Tron can. Therefore, the player must anticipate Sark's position when releasing a disc, or two discs. Hurling them in concert often yields greater success, but again—only in pairs. Throwing the third disc robs the player of the opportunity to destroy an incoming Chaser. Always try to maintain a disc in reserve for such an occasion.

Avoid throwing discs where they will obviously do no good. It might be fun, it might be pretty to throw your disc so that it will merely travel back and forth across the warring room before returning to Tron's hands, but it is also ineffective. The target spot should only be positioned at a point close to Tron when a Chaser or green Ring Pellet (two hundred points) is approaching. Besides being deflected or outmaneuvered, Sark's discs can be destroyed with a Tron disc as well (netting the player a hundred points). This isn't a technique I can advise, because the number of points gained doesn't justify concentrating on the discs rather than the foe himself. (Hitting Sark, causing him to fall off his ring, nets the player a nifty one thousand points.)

As play progresses, the player is required to use the rotary knob to position the *height* or *depth* at which Tron's rings travel; another "dimension" is added to the game, increasing the difficulty level tremendously. The temptation will be to throw the discs too high. A Tron disc will often sail harmlessly above his head. Imagine a thin line just slightly above Sark's feet. A disc thrown at this level will find its mark.

But remember: Sark's rings are constantly moving up and down. The player must counteract by constantly repositioning the target spot at various levels. It's important to note that once a disc is thrown, its trajectory *cannot be changed* by moving the target spot. But several discs can travel at different heights and depths at the same time, as long as the target spot is moved into different positions *before* discs are thrown. (An analogous situation is seen in *Missile Command*, where each missile can move to a different location by moving the sight before each missile is launched.)

Now here's the most difficult aspect of *Discs of Tron*. Ready? Brace yourself.

It costs fifty cents per game. To resist the temptation to sink all your mortgage or allowance money into this involving and dazzling game will require a great deal of . . . Master Control.

ROC-N-ROPE

I've seen several models of *Roc-n-Rope*, each with the action buttons positioned differently on the game cabinet. The most difficult version has the buttons ("rope" and "flash") positioned awkwardly in a diagonal fashion. The player's entire hand must move in order to go from one button to the other. Another version is somewhat easier; the buttons are side by side. In the easiest incarnation, both the Rope and Flash functions are combined into a single action button, and the game automatically shifts to the proper mode as the situation dictates. If you're playing a version of *Roc-n-Rope* with the action buttons positioned diagonally, be prepared to spend more than the usual number of quarters before being able to master the game.

Roc-n-Rope is here—to stay?

The object is to move your Hunter over a series of ledges until he gains top-most crest, avoiding various pitfalls along the way. Because the game uses a timer, it's necessary to move fluidly and without hesitation.

The ledges can become an irritating obstacle for the Hunter as the player directs him to toss the rope. The Hunter must take up a position almost to the end of the overhang before the rope can be successfully thrown; otherwise it simply hits the overhang and tumbles to the ground. On the other hand, move too far out beyond the overhang and the rope will stretch too much, missing its target.

Once the rope has attached itself to a ledge, move the Hunter onto it (push the joystick up first, or he won't grab it). As soon as he reaches the end of his rope, push him up onto the ledge.

Don't forget that the Cavemen and Monsters can knock the Hunter off the rope by shaking it. If they approach too close while the Hunter is in mid-air, hold him steady until the threat passes. If the Monster climbs out onto the rope itself, shift the Hunter to face it, then press "Flash" as the Monster closes in. The powerful flash-burst will knock the creature from the rope and you can then move the Hunter onward.

There are several routes a player can take to complete each screen. Always throw the rope towards a ledge which contains an Egg or a Prize. The prizes of course are worth bonus points. The Eggs provide an extra defense mechanism. Whenever the Hunter picks up an Egg, he becomes temporarily invulnerable to either Monsters or Cavemen. (An interlude of electronic music indicates the period of invulnerability.) Bring the Hunter up side by side with an Egg, and wait for a Monster or Caveman to approach. Then run across the Egg and wipe out your enemies, collecting from five hundred to fifteen hundred points in the process.

If the Hunter is menaced by two enemies on either side at the same time, and there is no Egg available, use the flash mechanism to stun one enemy. Then move to a safer position, throw the rope, and commence climbing once again.

Don't forget to make use of the vines and icicles as well. The Hunter can use them to climb down to a lower level, escaping immediate dangers.

When throwing the rope, avoid having it lock in close to a cave. Cavemen can rush out of caves too fast to be eluded. When possible, advance to the small ledges with no caves, unless an Egg is positioned close to a cave mouth and can be picked up immediately. □

MOTORACE USA

This is the first driving game to feature a motorcycle rather than an automobile.

You need no special talents or licenses to play—just a handful of quarters to buy yourself enough gas to get from Los Angeles to New York City, which is the object of the game.

Unlike other driving games, *Motorace USA* doesn't provide players with an accelerator or gears. Or handlebars. All the racing action in the game is controlled via two action buttons and a joystick. The joystick will hank the motorcycle to the right or left (which comes in handy when rounding curves), while the action buttons *represent* an accelerator and a brake.

The game begins in Los Angeles with the player provided a full tank of gas. Points (the number of bugs in your teeth?) are tallied and extra tanks of gasoline are awarded intermittently, as the player arrives at various cities across the nation in his/her trek across country. Once the entire gas supply is exhausted, of course, the game ends.

Three different stretches of road appear between each city in rotating fashion. Between L.A. and

Motorace USA—no helmet required

Las Vegas, for example, the player will encounter first the Turnpike, then a series of Curves, and finally a Highway which leads into the city itself. Between Vegas and Houston appears the Desert, the Underpass, and once again the Highway into the (next) city. Each piece of road has its own obstacles which must be overcome.

The Turnpike is loaded with other traffic which the player must pass and/or avoid. Keep your bike toward the center of the Turnpike, and ease it around the various vehicles which block your path. Whenever another car is passed, that car will edge close to the edge of the video screen, forcing the player to drive close to the shoulder of the road. As long as you don't touch the shoulder, you'll avoid a spill. Keep the acceleration button depressed fully when passing cars to get around them as quickly as possible. Just like in real life, motorists are hostile to bikers, so be careful.

The Turnpike also provides occasional opportunities for players to show off and do "wheelies" for extra points. This can easily be accomplished by steering the bike across the white strips in the road (conveniently labeled "wheelies").

Bridges appear in the Turnpike screen. To gain the most points, drive across the smallest bridge showing on the screen. The exception to this rule is if the smallest bridge appears on the side of the screen opposite to which your bike is riding. Don't try to cross the roadway to claim the smaller bridge; you won't make it. The bike will run right into the stream of water. Simply go for the bridge that is directly in front of you.

Actually, the smallest bridge is a "jump point" which sails the bike *over* the river. Because it's difficult to steer the bike onto the ramp with precise accuracy, this maneuver is worth the most amount of points. If you attempt the jump, just make sure your motorcycle *enters* the ramp straight on. If you're banking it in order to make it onto the ramp, the bike is going to flip right over.

Watch the white markings in the road to anticipate upcoming turns. At times you'll be required to push the brake control in order to avoid colliding with another car as it rounds a turn with you. Unless you actually have a fairly wide space for passing, avoid passing on the curves. If your positioning allows you to enter the smaller portion of a divided highway (which crops up during the Turnpike scene), do so. You'll gain not only extra points, but accumulate extra fuel by running over any cannisters of gas which appear in the road.

The series of Curves requires some true spot-on timing if you wish to complete them without decelerating or braking. To rule out any chance of a crash however (which wastes away a significant portion of available gasoline), slow down just a bit as you approach each curve on the screen. Don't drive (w)recklessly!

The long Highway into the city which appears periodically during *Motorace USA* is easy enough to navigate. Maintain full speed on these highways, and keep the bike centered. A number of oncoming cars are your obstacles here, but they are fairly easily avoided with a simple shifting of the joystick to the right or left. After successfully avoiding the last car, your motorcycle automatically enters the city and the game awards bonus points and extra fuel.

The Desert terrain, which follows, offers a number of other vehicles which must be passed, as well as boulders and cacti which have to be avoided. Steering through narrow paths (between boulders, for example) often awards players extra points, but the going is rough; you can become temporarily "trapped" on one side of the screen and accidentally run into a car ahead of you since there is obviously less room to navigate. The result is that speed must be decreased to avoid crashing. It's safer to keep to the center of the screen, as you would on the Turnpike.

Occasionally a car will spin out of control on the Desert. Because these cars only travel backward in a straight path they really don't take up that much screen room. Just push the joystick to the side to avoid spinning cars. The same advice goes for a slow-moving tractor which appears in the Desert sequence. Move off to one side as soon as you spot it since sometimes a quantity of cannisters will tumble from the rear of the tractor and clog your driving space.

Beyond the Desert lies the Underpass. From the player's point of view, all moving vehicles (including the motorcycle) will be temporarily obscured. Don't attempt to change lanes or pass other cars here. Decreasing your speed slightly is also wise, since crackups in the Underpass are more likely than at any other point in the game.

Throughout all the different screens, puddles of water appear and these, as in *Turbo*, should be avoided since they decrease your speed if traversed. Watch out as well for cars which can approach your bike from behind and ram it (Mad Max perhaps). If you're maintaining only a moderate speed for too long, a horn will sound warning you that you're about to be rear-ended. Keeping the bike moving at a high speed not only avoids this situation, but can net you as much as twenty thousand points at checkpoint time.

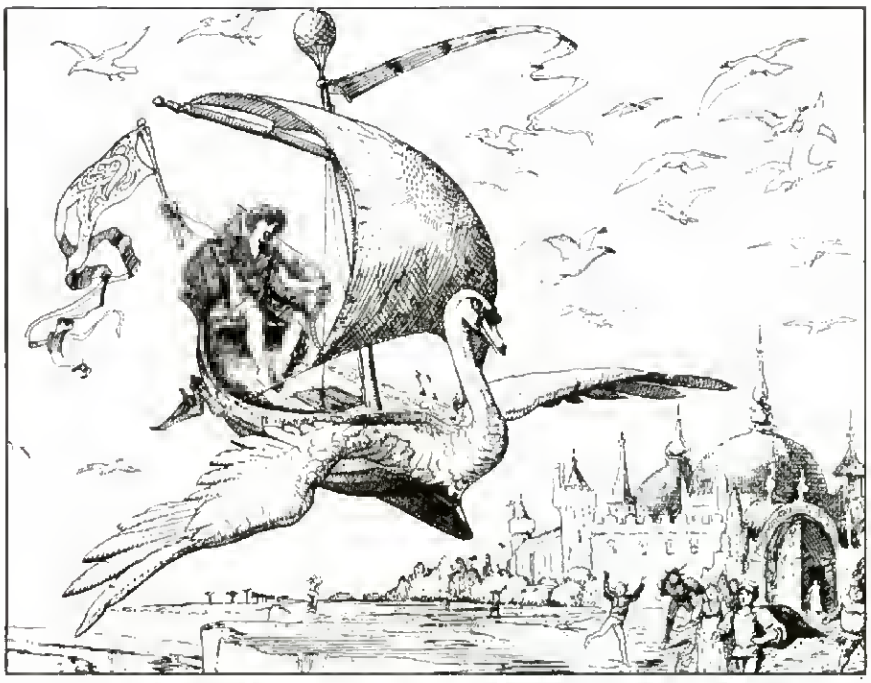
Bargain-seeking arcade players, take note: there is no reason to believe that *Motorace USA* will give you twice as many miles to the quarter as *Turbo*. □

Like the Roc, the Simurgh was an enormous bird of Middle Eastern lore, one who was all-knowing, could heal any wounds, and chauffeured people to and fro in various folktales.

Birds like the Phoenix, ravens, and crows played important parts in fantasy throughout the years, though only a few of them doubled as aircraft. In 1785, author Rudolph Raspe began publishing the saga of adventurer Baron Munchausen, who more than once mounted a bird and soared into the heavens. In the 1961 film based upon these tales, Munchausen even met Sinbad's Roc.

Hans Christian Andersen sent Inchelina (aka Thumbelina) journeying on the back of a swallow while, later in the nineteenth century, artist Isidore Grandville gave us cargo-carrying birds in works of whimsy. However, it wasn't until the twentieth century that bird-human flight really — well, took off! It's perhaps no coincidence that as soon as we won our mechanical wings we hopped on birds to get about, seeking to recapture pre-industrial age innocence.

The most striking parallel between *Joust* and the body of such literature occurs in Alex Raymond's *Flash Gordon* comic strip, where denizens of the planet Mongo often galloped about on bird-back. Edgar Rice Burroughs' Tarzan only managed to go aloft once in his twenty-six novels, but it was a dandy flight: snatched into the clouds by a nameless "great bird" in *Jungle Tales of Tarzan*, Tarzan stuck around until he decided that there was no reason "to submit thus passively to a feathered creature however enormous." Grasping his hunting knife, he gut the bird and fell to the treetops.



***Ford's rendering of a "swan-boat" from the fairytale* Minnikin.**

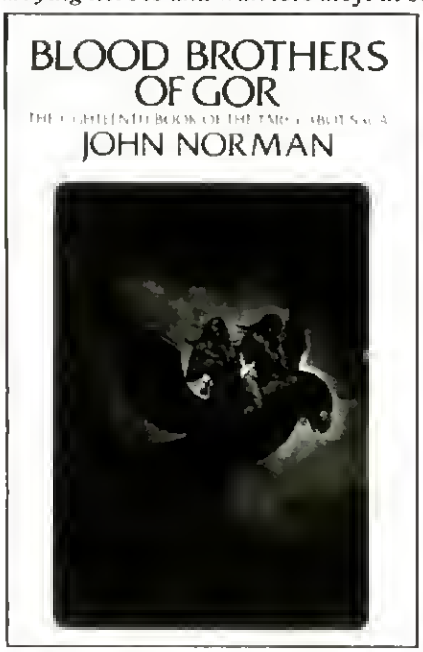
Antoine De Saint Exupery brought the hero of his 1943 novel *The Little Prince* from asteroid B-612 to earth via a flock of birds, while the anthropomorphised mice Bernard and Bianca flit about on a seagull in Walt Disney's 1977 cartoon *The Rescuers*.

However, since the middle 1960's, bird-back riding has largely been the domain of John Norman, author of the Gor novels. There are presently eighteen volumes recounting the adventures of earthmen Tarl Cabot on the barbaric world of Gor. The principal mode of transport on that distant planet is tarns, great eagle-like birds used for basic travel and combat alike.

As the price of fuel rises, and the cost of gene-splicing plummets, we may find that breeding giant birds is the most economical way to travel. Until then, Williams Electronics has done a splendid job of giving us as many birds as you could ever want.

King Charles would approve. □

Literature and folklore have given us the cultural roots of many of our most popular videogames, including* Joust. *Recently, giant birds have been carrying heroes and warriors aloft in some of our most popular fiction.



The Atari 5200 Controller
The Inside View

By William Sommerwerck

It isn't clear whether the controversy surrounding the analog joysticks for the Atari 5200 was a blessing or a curse. A blessing, because it drew attention to a system languishing in the shadow of an inferior product (ColecoVision)? A curse, because the nay-sayers may have driven away many purchasers before they ever gave the things a fair—uh—shake? ("Curse" is likely. A magazine survey showed that 8% of the responding readers owned the 5200, but 4% rated the stick "the best", while 6% ranked it "the worst." Since 4% + 6% > 8%, at least 2% of the readers decided that they didn't like this unique controller, without even having *bought* the 5200!)

And it *is* unique. As with the rest of the 5200 system, its design evolved from a rethinking of almost every aspect of home video game design. Atari tried to overcome the problems of existing hand controllers, and for the most part, they succeeded.

Starting with something as simple as getting the size right. This is the first hand controller that actually seems to have been designed for a hand. Its narrow, slightly tapered shape invites a comfortable, relaxed grip. The center of gravity falls below the joystick, which brings the fingers into the right position to press the action buttons. (Readers should note the fact that I am of average height—5' 9"—and that I have average, albeit quite shapely, hands and feet.)

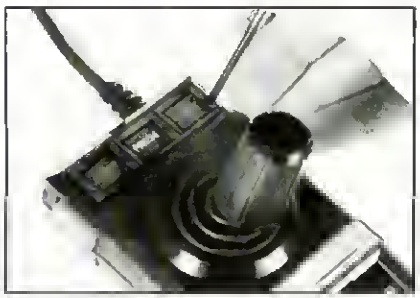
The author's pet Puggle shows an avid interest in the inner workings of an Atari 5200 controller. (He probably thinks that there's something good to eat inside!)

This good sense of balance is helped by the connecting cords, which tip the center of gravity toward the rear, leaving the keypad free (that is, the user doesn't try to put his/her hand underneath that section of the controller, or rest it against his/her belly). And unlike the Coleco and Intellivision cables, there is no coil tugging the controller back to the console. Combining this with their surprising limpness, the cables seem not be there at all, which you can't say about most other controllers.

The action buttons are agreeably soft, and mold somewhat to the contour of one's fingertips. There is a good sense of tactile feedback (that is, you can tell that the button has made contact, without having to see anything happening on the screen). Atari, like Mattel, duplicated the action buttons, so that the controller is equally suited for the adroit or the gauche. But unlike Mattel's, Atari's are in comfortable locations. (Although the prototype controllers had wide buttons, those from the first production run were too narrow to comfortably locate and press. Current controllers have wide buttons. Atari service stations will replace the older buttons at no charge, if you bring them in before the end of the year.)

So much for the outside; the guts are the most interesting part. The photos illustrate how to safely dismantle the controller. This is not intended as encouragement! On the contrary, one of our purposes is to describe the controller sufficiently well that DIY types will lose the urge to tear into it. And those who have unsuccessfully attempted a reassembly will learn all they need to know from a perusal of the photos.

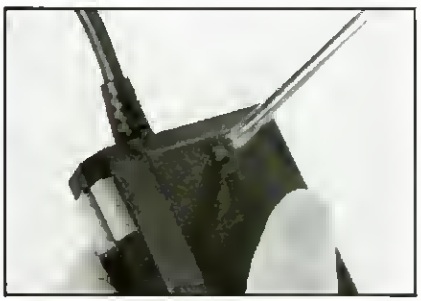
The heart of the 5200 controller is a flexible printed-circuit (PC) board. (It seems to be the only controller with one.) Although they cost rather more than regular PC boards, they have several advantages. The prin-



Push a thin, wide screwdriver into the very norrow slot between the frame oround the game control buttons and the controller body. Insert it at the top or bottom of the slot, not the middle. Push gently.

The frome should pop loose. Remove it ond the gome control button strip.

Lift the PC board gently. (Excessive bending will couse one or more of the troces to crack. They ore olmost impossible to repair.) It may be held by double-sided tape at the right end.



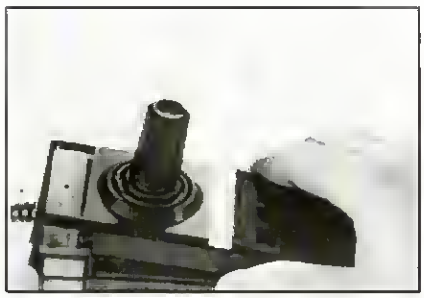
Turn the controller body over and remove all three of the screws.

cipal one is the ability to lay out the wiring and switch contacts in almost any pattern. Atari has taken full advantage of this by eliminating solder connections (the board plugs into a socket that connects to the cable harness) and conventional switches. The latter are replaced by interdigtated conductors on the board. The board's flexibility allows them to lie flat at the top and bottom (for Start/Pause/Reset and the keypad), while turning vertically to service the four Fire buttons.

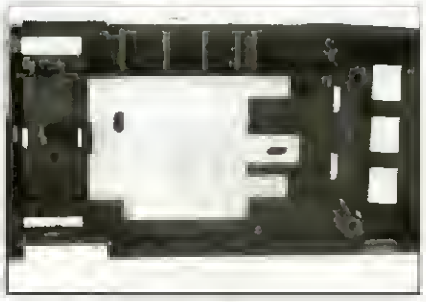
Now that we have switch contacts—how do we close them? Each button contains a conductive rubber insert. (Yes, there is such a thing as conductive rubber. Its low resistance appears to have been obtained by the liberal addition of graphite.) When the insert touches the conductive paths on the PC board, enough current flows for the computer to know that the switch has been pushed. This is a big improvement over the bubble or membrane switches found in other controllers. The improvement is not so much due to the insert itself, but rather to the type of button such an insert makes possible.

The buttons are no less unique than the rest of the 5200 controller. The keypad, game control switches, and the two pairs of fire buttons, are each a single piece of molded synthetic rubber. The rubber near the base of each button is thinner, so that the button may be freely pushed forward. At the same time, it is contoured to supply a restoring force to return the button to its rest position when the user lifts his/her finger. Each rubber molding covers the contacts it services, so there is excellent protection from spills and other environmental contamination. The result is a cheap and easily assembled, yet reliable and aesthetically pleasing solution to the problem of how to produce a good set of control switches for a video game. Like the rest of the 5200 system, it's elegant.

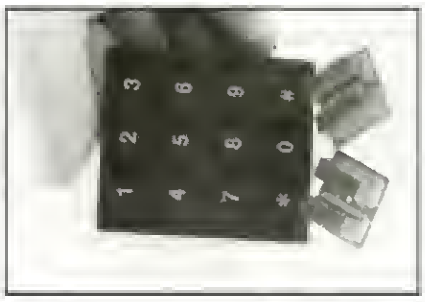
"Elegant" was not the only word used to describe the analog joystick itself, our last stop on this tour of the 5200 controller. Opinion divides sharply. Either, like myself, you think the 5200 has the best video game controller, bar none, or you feel it's the absolute pits. There is no middle ground.



Open the case carefully. Stort at the top. When it won't lift ony further, move to the bottom and gently pull the sections opart.



These ore the resolver plotes. Note how they are mode of different plastics, to reduce friction.



The keyboard ond fire buttons.

These potentiometers (olso known as "pots") control screen movement, working on the some principle as a paddle controller. The upper pot controls vertical motion. They snap into ploce, ond have solderless, force-fit connectors for eosy ossembly ond replocement. (Note socket for joystick orm between them.)

Few would deny that an analog controller is potentially superior to the usual digital stick. Instead of simple on-off action, an analog joystick produces a continuously varying output which can permit subtle adjustments in speed or position. (In the 5200 *Star Raiders* the position of the stick determines the velocity at which the spacecraft dives or banks, a feature not available on the 2600 or computer versions.) The *real* controversy revolves around the lack of self-centering, a feature common to almost all arcade and home controllers. The lack of self-centering makes it harder to know which way to push the stick, because the player loses one of his/her reference points.

It's tempting to think that Atari dropped self-centering because the 5200 is aimed at a mature audience that doesn't yank the stick in maniacal frenzy. But it's more logical to assume that self-centering is difficult to add to a hand-held analog controller. Those who disobey our warnings and open the controller may wish to study the resolver plates (to be discussed later). Self-centering *could* be added by inserting springs at each side of the plates. But such a design would be harder to assemble and more fragile. The controller's light touch and responsiveness would be diminished or lost. This isn't a good trade-off, since there *are* other solutions to the problem.

One would be for the programmers to pay more attention to the way the game uses the positional information it receives from the controllers. Regardless of system, we've all seen games where the controllers work smoothly, fluidly, and precisely, and others where it's almost impossible to get them to obey you. These differences are principally due to decisions made by the programmer. Suffice it to say that analog joysticks require an altogether different approach from digital, and the 5200 programmers are not fully aware of this.

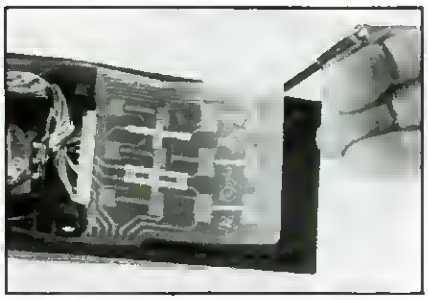
(Ken Uston seems to be the only game reviewer who understands this. Another reviewer, after lauding the 5200 *Ms. Pac-Man*, wailed that such a good game "must be soiled by such a ridiculously designed piece of hardware." It may be cold comfort, but the problem really lies with the program. And Atari isn't the only offender.)

The guts of this analog controller are the two potentiometers ("pots") sitting on the "floor." They are just like the paddle controller for the 2600. One controls horizontal motion, the other, vertical. ("There is nothing wrong with your TV. For the next sixty minutes . . .") The obvious question is: how does the controller change the generalized rotary motion of the joystick itself into up/down and left/right motions, and then move the pots?

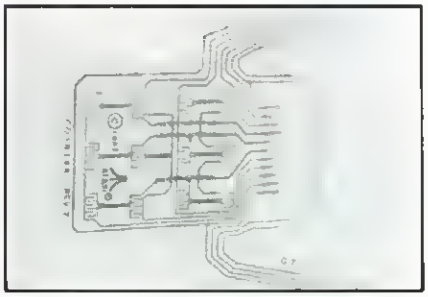
The question is answered by the use of two resolver plates. The name is apt, since they resolve the rotary motion of the stick into independent left/right and up/down motions. The plates are each constrained to move with only one of these motions, by means of plastic ribs in the case. The plate which moves vertically has a small slot in it that mates with the arm attached to the vertical pot. Motion of the plate rotates the pot. The horizontal plate and pot work the same way.

The actual conversion of rotary motion into left/right and up/down works like this. The end of the joystick itself is rounded, and constrained by a socket on the "floor" of the controller. (This constraint prevents the stick from just idly flopping around when manipulated. The knob and stick are also free to rotate in this cup, so the user's hand is not forced into a fixed position.) The resolver plate that moves vertically has a horizontal slot cut in it, and vice versa. The stick passes through these slots. Assume that it is pushed upward. It will freely move along the vertical slot in the horizontal plate. But it *will* push against the horizontal slot in the vertical plate, moving it upwards. (Got that?) The same thing happens to the other plate when the stick moves horizontally. Thus, any arbitrary motion of the joystick is converted into independent left/right and up/down motions.

The resolving plates are a good place to end our tour of the 5200 controller, because their construction reveals something significant about Atari's design philosophy. they are made of two different kinds of plastic! Why? Well, it's

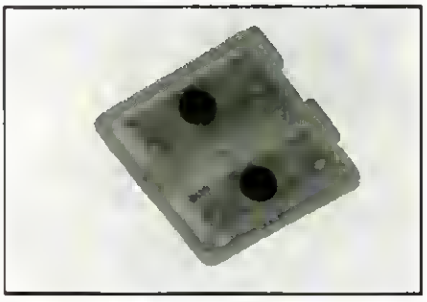


The keypad area of the PC board.

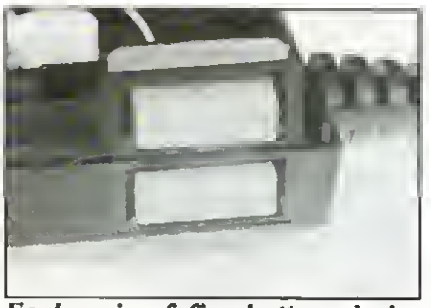


The printed circuit board by itself—revision 7! (The board in the unit shown, of the first production run, is rev 6.)

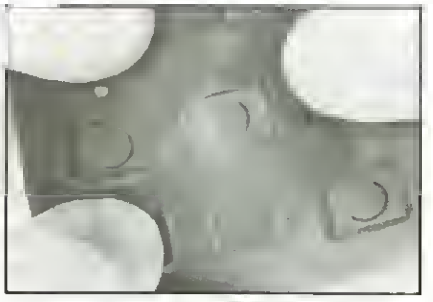
The contacts for the right pair of fire buttons. The lower contact of each pair is most often used for "general" firing, the upper for special functions. Note the indexing notch cut at the bottom of the PC board and the matching lug in the case.



The back side of the fire button. This is the older version, which is about a 1/16" shorter than the current version. It makes a big difference! The "little black things" are the conductive inserts.



Each pair of fire buttons is inserted into a frame which locks into the side of the Atari 5200 controller.



The rear of the keypad. I've pushed one of the buttons towards the camera (from the other side, of course) to show the articulation.

generally true that moving parts made of different materials have less sliding friction than parts made from the same material. It would have been cheaper to make them from the same plastic, but Atari wanted to keep friction down (and reduce the chance that heavy or abusive use might "weld" them together).

Someone once said that "quality is attention to detail," and the 5200's controllers prove it. You won't find this careful design and choice of materials in any other OEM controller—especially Coleco. Like I said, a class act from beginning to end. □

KEYBOARD

Continued from page 4

There is a unity and oneness in all advances in know-how. We are already in space, an ultimate frontier, where the distance we can go, and the things we can learn about are as yet unmeasured.

Living brains are one thing, but our present computers are parallel in function, and far faster. There are memory banks. The logic-process, that portion of intellect that researches knowledge in the direction of solving posed problems toward the best possible solutions, and forms new associations of data, thought and invention, is pretty well understood, and has been in increasingly broad and keen computer-use for years: chains of simple questions, answerable by yes or no, go or no-go, zero or one, leading to complex answers. Electrons finding their way along the best, most logical paths, are quick, but photons will be quicker, more selective and efficient. Computers with such forms of inventive intelligence seem a definite prospect. But consciousness—awareness of individual self . . . can we even define it fully? I can't, though I've tried. Lacking even a clear definition, how can we ever give it to a device? As they are today, our most advanced computers are probably no more aware than the simplest mechanical adding-machine, summing two and two. They don't feel; they can't become bored or frightened or angry, or truly eager for some hoped-for objective; they don't need will or enthusiasm to do their work; they are driven only by how they have been programmed, and by the energy-flow within them. In contrast, it is our human emotions that propel our wits into action—fascination, curiosity, ambition, fury, altruism, need. All of these seem functions of our consciousness.

Yet who can say? The door of possibility is open wider than ever before. Nimbler artificial intelligences still in the visionary stage may yet be programmed to help give later generations of themselves the mystery of being aware and interested, maybe by some interfacing of physics with biology since, to this date, consciousness seems strictly a biological phemomenon, in people and in at least the higher beasts. This is another might-be that can frighten or thrill us, rightly or wrongly. Another yet-unknown.

Many things might soon come about: Memory-and wisdom-enhancers implanted against our skulls? Or devices giving us new senses, enabling us to communicate individually with each other, even over great distance, still by electron-magnetic means, but without the slanted intervention of TV or radio? A force for improved understanding and warmth, worldwide? Which of our already-born children or grandchildren will be living and working on the moon, or Mars, or inside some luxurious, hi-tech space-construct? Will a life-span go to two centuries? . . .

Or will few of the good things get a chance to happen, in the face of other aspects of our hurtling technology, as some persons predict?

We live in a wondrous scary time of rapid progress and widened boundaries. I hope we have what it takes to adjust to our situation. Whatever our individual views, we're stuck with it. We've already come a long way—reaped many benefits—without ultimate disaster. I'm an optimist. There are signs that speed of computer reaction-time, in combination with other advances, may soon neutralize the threat of nuclear war that has troubled us for so long.

Of all the historical eras so far, I wouldn't choose any other. The universe is before us.

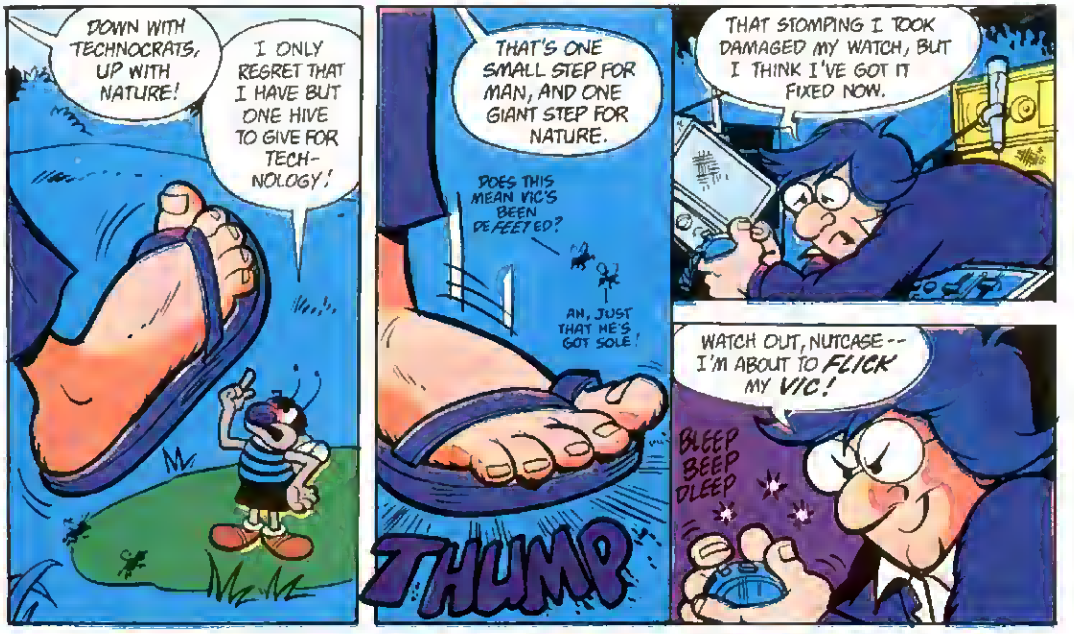
Raymond Gallun's first published story appeared in 1929 in Air Wonder Stories. *Since that time he has authored dozens of short stories and novels on a multitude of subjects in the science fiction field. After World War II, he "sort of retired" by leaving science fiction to become a technical writer. Recently, the talented Mr. Gallun returned from retirement with two novels.* □

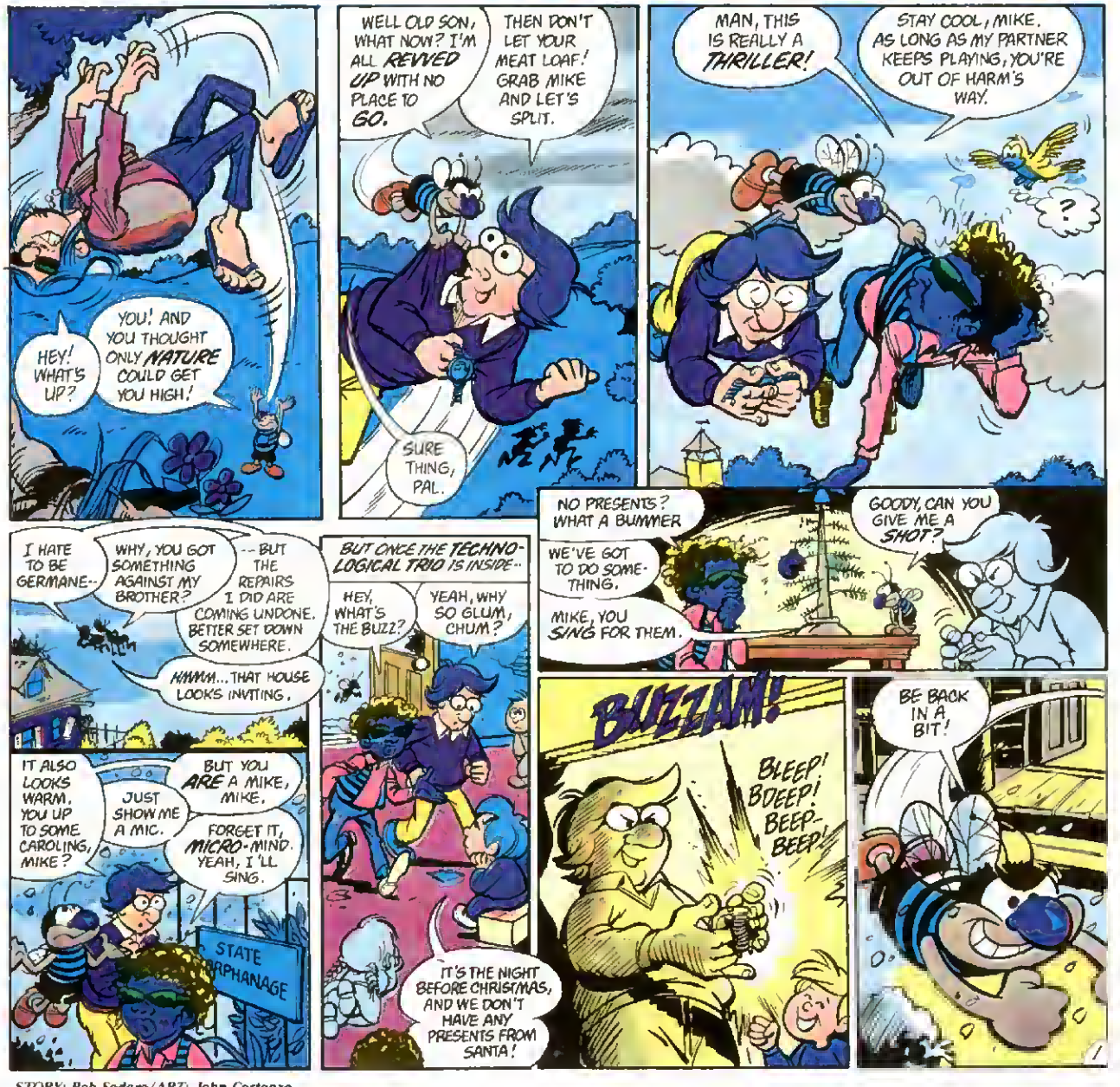
video victor

FLIGHT OF THE BUMBLE BEE

(A CHRISTMAS STORY)

WHILE GOODY AND VICTOR WERE ATTENDING A MICHAEL YELLOWJACKSON CONCERT IN THE PARK, THE CONCERT WAS ASSAULTED BY A HORDE OF AGING FLOWER PEOPLE LEAD BY TIMOTH-BEE LEARY.





STORY: Bob Sodaro/ART: John Costanza


LATER...
BEELY-JEAN, YOU'RE THE ONE...
SAY-- WHAT'S THAT?
BEEP
BEEP
BEEP
IT'S SANTA!
DO YOU THINK--?
HO! HO! HO!
IT'S SANTA!!
COULD BE!
HO! HO! HO! MERRY CHRISTMAS TO ALL!
LASER GATE
ATARI
ACTIVISION
WOW! LOOK AT THAT.
NEATO! VIDEO-GAMES!
From all of us to all ... of you, have a bee-utiful holiday season!
JOHN COSTANZA
2

Flesh Out

I very much disliked the "cheesecake" setup of the cover of October's issue. I expect to find that sort of thing in *Playboy*—not your magazine. It seems to me that you could have found something more appropriate for your cover than some model's rear end!

I realize that your intentions in running the article were meritorious and your reporting most fair (also in keeping with many people's attitudes). Perhaps it was a needed article. Nevertheless, it rendered this issue of the magazine unfit for my children—aged nine and six—to read or look at.

I hope it will be a long time before such subject matter is again included. Next time, I will browse in the store before I buy! The *whole* family likes to read and enjoy your magazine.

Barbara Toomey
Indianapolis, IN

Why the sexy lady on the cover of your October issue, plus more scantily clad pictures toward the back? I have two little children who look at your magazine. You're supposed to report on video cartridges and arcade games, not the selling of sex or the feminist outlook on the industry. I don't want a magazine that supplies minority views, but a *video* magazine. And how could women be a minority anyway? Half the people in the world are female.

Now I see why your magazine can't be found in all bookstores and newspaper stands. Let's get back to being truthful, and stop getting off-track.

William Pobedinsky
North Arlington, NJ

Mass Hysterics

Ironic, isn't it, that in the same issue of *VCI* (Sept. '83) where Mr. Bent reports that some Malden, Mass. residents are up in arms about the evils of videogames, Mr. Gardner in nearby Boston/Cambridge reports that a group of distinguished educators, psychologists, social scientists, and computer experts brought together by a generous hands-off Atari donation to Howard University have determined rather uniformly, if tentatively, that these same videogames have virtue that ought to be extolled?

Makes one wonder if stupidity or ignorance reigns in one of these groups, and which one? Attaboy, Atari, for your public-spirited service. Kudos, *VCI*, for telling it like it is. Rejoice, Malden videogame fans—truth may yet prevail.

Laura Mills
Kansas City, MO

***Activision's* Pitfall *atop its predecessor, Taito's* Jungle Hunt.**

Abridged Too Far

Your abridgement of my letter in the October issue stretched editorial license somewhat. Coleco certainly deserves few compliments for their Atari and Intellivision cartridges. However, they don't deserve criticism for lack of originality or for ripping off other companies' games as your partial printing of my letter implies. It's Activision that does.

For the record, compare the following Activision titles with games from other companies that preceded the Activision titles—the other companies' games being either for arcade, computer or dedicated home video:

Activision	Other Company
Laser Blast	*Missile Cmd.*
Freeway	*Frogger*
Starmaster	*Star Raiders*
Enduro	*Pole Position*
Chopper Cmd.	*Defender*
Robot Tank	*Battlezone*
Pitfall	*Jungle Hunt*
Happy Trails	*Locomotion*

In view of these and others I don't see how you can honestly praise Activision for originality; in fact, Activision is perhaps the least original company in terms of original concepts for video games. I have no quarrel with your praising them for superior graphics. Or for innovatively taking a game theme and changing it enough to make it appeal to many. Or for producing games that offer the highest eye-hand coordination challenge. But praise for original game themes, as I have frequently seen in *VCI* and other magazines as well: certainly not.

Larry Miles
Independence, MO

Sorry for stepping on your toes. In the interest of printing the most readable letter column possible, we cut down many of the letters we publish (yours, for example, being four times the length printed here). We sympathize with your frustration over having your meaning obscured. Once, just for spite, our production department cut one of our articles in the middle of the second

Chewing Out Over Nybbles

Okay, so you've done a commendable job so far. Meade and Clark have set the industry standard for games reviews. *Eye On* regularly scoops the competition. *Conquering* supplies some of the best indepth strategy I've seen. *VCI* was on its way to becoming the class act of electronic gaming magazines.

That is, until the September issue.

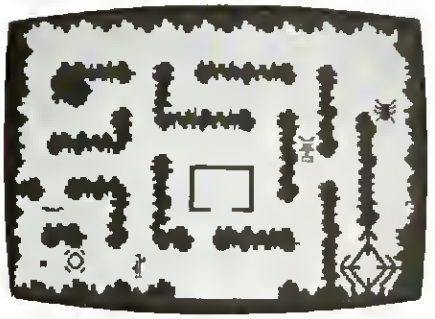
September heralded the introduction of the *National Enquirer* of video, simply titled *Nybbles*. Yes, folks, apparently the industry has slowed down a tad, and there appears to be a shortage of facts to report. What to do? Of course! Let's resort to

innuendo.

Seriously, what the hell is this? First we have our slurs on the industry leaders: N.A.P. becomes inept, Imagic can't unload their product, Activision denies ripping off ideas, and Coleco scams the world. Then, in our "Who cares?" department, we have corporate politics at CBS (isn't that a bit inside for 99.9% of your readers?) and *Zaxxon*—the movie. Finally, a game recommendation.

So, what has been accomplished? We have a breathless recommendation for an Atari 800 game (hardly trendsetting for a video magazine). Then we have some vague industry info, which may be different, but hardly useful. Therefore, the only meaningful accomplishments of *Nybbles* are the first dirt-digging articles in the videogame industry. This kind of crap we can do without.

Douglas S. Raeburn
Menomonee Falls, WI



Night Stalker *for Intellivision.*

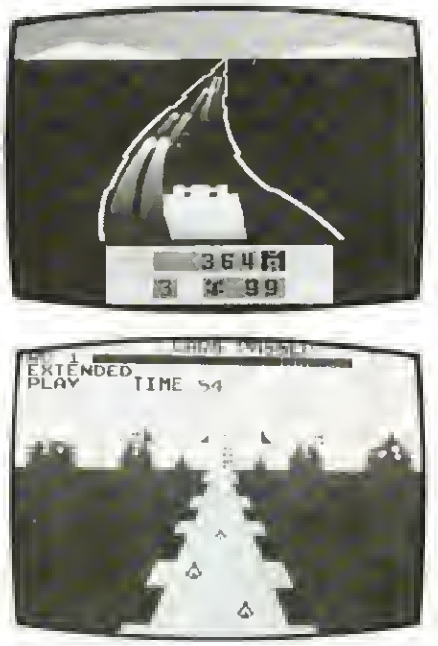
Oh, My, Papa

I disagree very strongly with Mr. Papa's assertion (in the November issue) that Intellivision has just about reached the end of the line. The disc controllers work just fine after a little bit of practice and with Intellivision II's plug-in controllers, replacing them is an easy process.

It it true that most of Mattel's early action games were not very good, but the more recent ones such as *Night Stalker, Lock 'n Chase* and *Burgertime* are excellent and in my opinion compare quite favorably with any ColecoVision or Atari 5200 games. Both Imagic and Activision have produced excellent Intellivision cartridges and have many more planned.

I think Intellivision will be around for a while. By the way, Imagic's first two cartridges for Odyssey are the best games that system has seen in a long time.

Robert Russo
San Jose, CA



Enduro *(top) and* Turbo: *which game runs rings around the other?*

Polar Position

I just can't believe that Jim Clark said "*Enduro* leaves every other home racing game in the dust. That includes *Turbo* for ColecoVision." If this is true then I'm Mario Andretti!

I own *Turbo*, and borrowed a friend's Atari adapter with *Enduro*. When I first played *Enduro* I was impressed with its graphics and gameplay. However, after only a few hours I became bored with it. I certainly hadn't mastered it, but I became bored anyway.

This was obviously because I'd become used to the outstanding graphics and gameplay of *Turbo*, far superior to *Enduro's*. Compared to *Turbo*, *Enduro* can't even get out of the starting gate.

James Mucerino
Richmond Hill, NY

Dry Meade; Bar Clark

I enjoy your magazine very much. It's informative and interesting, with a distinct character all its own. I'm very selective when it comes to both videogames and videogame magazines, and your publication is a must buy for me.

Eye On is great. I'm always interested in new offerings lor my VCS and ColecoVision. I like the format of giving the name of the system and a brief description of each new title. It saves me the trouble of searching through the entire column for news that's of interest to me.

I also like *Nybbles*, and hope you keep it separate from *Eye On*. *Nybbles* should remain for gossip and *Eye On* for concrete news. One thing that turns me off from some video magazines is that they never distinguish between what is and what is planned.

Your *Preview* section is probably the best of any magazine's. Meade and Clark have completely different approaches to the games. Their opinions are frank and forthright. Two things, however, bug me.

First, if E.C. Meade is a paid employee of your publication, how can she get away with the review she did on *Dragonstomper*. She didn't even get to the final screen of the game. She states that she was "bored" with the game. It seems to me that it's her professional responsibility to me and every other reader to gain a thorough knowledge of each game before she hits her typewriter and gives it a hatchet job. If I ever told my boss that I was too bored to do a complete and thorough job he'd hang me out to dry.

My second criticism concerns the so-called questionable taste of some videogames. Meade and Clark should be reviewing, not editorializing. It should suffice to say that *X-Man* involves sexual situations and that the caribou is killed in *Ice Trek*. Your magazine's policy should be explained in an editor's note at the beginning of each issue.

I again commend your efforts. Good luck in the future.

Kenneth H. Rickert
Brooklyn, NY

Sore Thumbs

We just read about Mark Schultz's experience with Imagic's Numb Thumb club, in your October column. Last November we sent in payment for two memberships, and received *one*—in *March*. We're still waiting for the other.

Our letters, like Mark's, have gone unanswered. Imagic may be swamped with requests, but people have paid their money and should be told what the delay is.

Doug and Sandy Swift
Pontiac, IL

The Novice's Guide to Word Processors

By Bernhardt J. Hurwood

It is pretty much a foregone conclusion that anyone who uses a typewriter now will eventually switch to word processing. Even though there is far less confusion today than there was, say, five years ago or even one year ago, unless you are prepared to do some serious research on the subject, chances are you will end up with your head in a spin after the first few days of your quest.

Now, assuming that you are one of the many who has been thrown into a state of anxiety, having decided to join the computer age, I urge you to remain calm and pay close attention to what you are about to read, because, if you do, it is guaranteed that you will avoid much grief.

The first thing not to do is run out and buy every "How-to-buy-a-computer" book. Why? Because it is pointless to do that until after you have taken the first step, which is to ask yourself, "Do I really know what a word processor is?"

That may sound condescending, but it really is not. It is amazing how many people do not know that a word processor is actually a software program that enables a computer to create, edit, save, and print text. The reason for this possible point of confusion is that technology has been zooming along too fast, and as a consequence, the terminology has tended to get a little blurry along the way.

It should be added that a "dedicated" word processor is a computer with a built-in word processing program, and which is limited to word processing. These are usually very expensive, powerful pieces of equipment, with immense memories. They are as a rule "user-friendly," that is, easy to learn and operate. They are usually found in offices where a large volume of material must be written, typed, edited, and duplicated. Stenographers and typists with minimal training can be taught to use them with relative ease, but they are definitely not for the private individual who wants to do the normal kind of writing, be it letters, term papers, household inventories, address files—even the great American novel.

Said private individual, be (s)he a professional writer or anyone who uses a typewriter, once having decided to go into word processing, actually is in the market for a personal computer. So for the moment, let's concentrate on personal computers, which are generally referred to as "hardware" in that awful language called computerese.

The next logical step is to ask yourself specifically what you want to do with your computer. What kind of word processing are you planning on doing? What other applications have you in mind for the computer: game playing, programming, bulk mailing, mathematical calculations, such as income tax? You can do these things and many more. Personal computer owners invariably find that once they get the hang of them, they learn something new almost every day. So give some serious thought to just how you plan to use your computer once you get it.

Next, check your financial resources and decide how much you can afford to spend. Remember that advertising can be misleading if you don't know all the angles. Sure, you can get a computer for as little as $100.00, but don't fool yourself into thinking you can do much with a $100.00 computer. If you are serious, you have to think about peripherals (another of those exasperating terms in computerese), in other words, anything peripheral (but often essential) to the computer itself, such as a printer, the cable that connects the printer to the computer (yes, that often costs extra), monitor, disk drives, and then, of course, the software, or programs that enable the computer to perform its various functions. I won't launch into a lengthy discourse on

The Wang, primarily an office system, is a writer's dream word processor.

software now, but bear in mind the words of Bonita Taylor, one of the most knowledgeable individuals in the computer industry today. "In time to come," she predicted, "You will be spending more money on software than anything else related to your computer." But that is the future and we'll come to that another time.

Now, having decided how much you can spend, the time has come to get down to the nitty gritty of shopping for computers. But before you start looking at computer advertisements in your favorite computer magazine or newspaper, do a little preliminary reading. Remember, you are planning to acquire an expensive, sophisticated piece of electronic equipment, and you would be crazy to go out and take the first thing you were sold by some high pressure salesperson, who did not necessarily know what he or she was talking about.

So what kind of reading do I suggest? With certain reservations I would recommend that you start with Peter McWilliams' *The Word Processor Book*. The principal service that McWilliams has done for his readers is to demystify the computer and to describe what it does with originality and humor. He has a tendency to cuteness, but if you can deal with it, what he has to tell you is of sufficient value to save you a lot of wasted hours.

McWilliams goes into the background of the computer and finally, after explaining things in plain English, he presents a comprehensive guide to equipment that is now on the market. The problem (not his fault, of course) is that something new appears almost every day, it seems. Similarly, as competition stiffens, prices change radically. Despite these minor drawbacks, McWilliams gives you a fair idea of what is out there and roughly how much it will cost. Watch out for his personal prejudices, though. You can almost see him making faces when he says that a computer, which he otherwise praises, has a terrible drawback—an attached keyboard. This brings up a fairly important point. When you get involved with serious computers, you will find that some have detached keyboards, and some do not. The detachable keyboard was originally designed to fit the needs of programmers, who have been known to slump down and assume otherwise strange physical positions while at work, and since in the early days of computer design many designers and programmers were either one and the same or bosom buddies, they tended to do things in ways they liked best. I should add that there is nothing wrong with a detached keyboard; as a matter of fact it is especially advantageous to someone who has back problems and may have to watch the way they sit. But by the same token, don't assume that an attached keyboard is as bad as McWilliams makes it out to be. As journalist Marvin Grosswirth wrote after he joined the computer age, "I've been using a typewriter for thirty years. I never found one with a detached keyboard, and it hasn't bothered me yet."

So, assuming that you have followed all the preliminary steps to actually shopping, and have gotten what you need from McWilliams, you should now be ready to start checking out the computer dealers with a good general idea of what kind of computer you want.

Now comes the time to learn about those eager folk who want to sell you a computer. The first and most important thing to understand is that all too many of them don't know what they are doing. They are often no more qualified to sell computers than they are gadgets at the local department store, which is one of the reasons it is not advisable to buy a computer at a department store: quite possibly they will either give you the wrong information or none at all.

As for the specialized computer stores, you have to feel your way. If you are lucky you will walk in and find someone who knows what he or she is talking about and who will spend ample time and effort to help and advise you. But before you buy anywhere, be sure to find out in advance whether they will provide you with the hand-holding you will need after your computer has been delivered. This is of utmost importance, because one of the worst things that can happen is to discover that your dealer won't talk to you after (s)he has your money.

Once you are in the store and have succeeded in capturing a salesperson you will know fairly quickly if you have found the right place and the right individual to deal with. Do they give you their undivided attention, or do they run off every few minutes to talk to someone else, or to answer a phone? Do they try to sell you something you don't want, or do they try to help you with what you want to

find? Little things like this are important, and they provide clues which will tell you whether you are on the right track or not.

In general by the time you have gone this far, you should be well on your way to doing the right thing for yourself. Just remember, no matter what you buy, once you start working with it for the first week or so you will become so frustrated that you will think you are an idiot or worse. Don't let it worry you; things start clearing up very quickly.

Here are just a few tips on other things to look for. The competition being what it is, more and more computer manufacturers are offering very attractive packages which include substantial software programs. Programs, especially word processors, can be very expensive if purchased separately, so take this into consideration. Also, there are programs and programs. *Wordstar*, one of the most widely used word processors, is very powerful, but very difficult to learn.

Perfectwriter, a program quite similar to *Wordstar*, is also difficult. So if you don't want to tackle something that requires memorizing 146 different commands, then you had better look around for something easier than *Wordstar*. But *do* look for a deal which will net you a good software package with your system. I say "system" at this point because you will definitely need a printer.

A long dissertation on the merits of one printer over another is best saved for another time. The most important thing to know now is that there are two types of printers, the dot matrix and the daisy wheel. The former prints characters composed of many tiny dots. The latter uses a print wheel which derives its name from its shape, and which produces characters exactly like those on a typewriter. Dot matrix printers are faster and as a rule less expensive. But if you are a professional writer, or are planning to become one, you had better get a daisy wheel printer because many editors have an irrational prejudice against manuscripts that come in on dot matrix printers. There is never any percentage in starting a game with two strikes against you before you go to bat.

One of the biggest drawbacks to computers and software in general is the documentation (another piece of computerese): the manuals that allegedly explain how things work. Unfortunately, virtually all the manuals are written in abominable English by technicians who write as if they learned it from reading instructions that came with inexpensive Japanese camera and electronic equipment. Not only are they murky, heavy, and incomprehensible, peppered with jargonistic expressions known only to technicians, they are also written with a logic system based on machines, not language. This is a problem that the industry simply must face, and soon. As competition increases, as the buying public becomes more knowledgeable, the manufacturer who sells a product that comes with an understandable manual will be ahead of the pack. But as for you, the potential buyer today, look at what is available, and go for what you think will work best for you.

Once you have announced your readiness to join the computer age you will no doubt hear well meaning friends say, "Wait a couple of months, something new and cheaper will come along." They are probably right, but only partially. Something new will keep coming along for the next ten years at least. But are you prepared to wait that long? Find what is right for *you*, buy it and start reaping the benefits now. But make it a point to get some "hands-on" practice first so you will have an opportunity to get the feel of the keyboard. Any computer store that will not allow you an hour or so to experiment is not worth your time. That time spent will make your decision easier and give you more confidence in the long run.

And bear in mind, no matter what you finally decide to get, after a few months you will feel like an expert.

Up to now, we have deliberately avoided mentioning any computer or software package by name. However the field of computer hardware seems to be narrowing itself down to these majors: Apple, Commodore, Atari, IBM, Radio Shack/Tandy, and Coleco's (untested) Adam. Minors to watch carefully include Spectravideo, Timex/Sinclair, and Panasonic. In past issues we have provided detailed reviews of many of these computers. In a future issue we will run a feature-by-feature comparison.

For the wealthy and the dreamers among our readership, the most worthy "dedicated" word processors include Kaypro, Eagle and Wang.

As to word processing software, the field is wide open and ever-

"Can you get the phone, honey? We're occupied."

changing. Some programs may boast all of the features a writer might want (headings, footings, pagination, moving blocks of type, proportional spacing, search and replace etc.), and yet getting the program to work may turn out to be frustrating and time-consuming. Another might have only a few of those functions, but the ones that it does contain may perform smoothly and easily. It is up to the individual to decide which functions are essential, and to shop diligently from there. We can heartily endorse Richard Krawjewski's article in the September issue of *Writer's Digest;* it is a thoughtful and complete guide to the functions and programs available.

Listed below are word processing programs that are commonly considered to be the most powerful and versatile for each of the most popular and versatile home computers.

Apple

• Apple Writer II & III
Apple Computer Inc.
20525 Mariani
Cupertino, CA 95014

• Magic Window II
Artsci,
5547 Satsuma Ave.
N. Hollywood, CA 91610

• Wordstar
MicroPro International
33 San Pablo Ave.
San Rafael, CA 94903

• Benchmark
MetaSoft Corp.
711 E. Cottonwood, Suite E
Casa Grande, AZ 85222

• Palantir
Designer Software
3400 Montrose #718
Houston, TX 77006

• PowerText
Beaman Porter, Inc.
Pleasant Ridge Rd.
Harrison, NY 10528

Atari

• Atari Writer
Atari Inc. Home Computers Div.
P.O. Box 61657
Sunnyvale, CA 94086

• Bank Street Writer
Broderbund Software
1983 Fourth St.
San Rafael, CA 94086

• Letter Perfect
L.J.K. Enterprises
P.O. Box 10827
St. Louis, MO 63129

• Text Wizard
Data Soft
9421 Winnetka Ave.
Chatsworth, CA 91311

Commodore

• Quick Brown Fox (64, 20)
Quick Brown Fox
548 Broadway, Suite 4G
New York, NY 10012

• Smithwriter (64, 20)
Softsmith Corp.
2935 Whipple Rd.
Union City, CA 94587

• TOTL Text 2.6
TOTL Software, Inc.
1555 3rd Ave.
Walnut Creek, CA 94596

• TSI Editor
Typeshare
8315 Firestone Blvd.
Downey, CA 90241

IBM-PC

• Powertext
Beaman Porter, Inc.
Pleasant Ridge Rd.
Harrison, NY 10528

• The Final Word
Mark of the Unicorn, Inc.
222 Third Street
Cambridge, MA 02142

• PIE: Writer
Hayden Software Co.
600 Suffolk St.
Lowell, MA 01853

• Benchmark
MetaSoft Corporation
711 E. Cottonwood, Suite E
Casa Grande, AZ 85222

SUSPENDED

Infocom
Commodore 64
Disk

"My systems are failing" was the message. I knew that it was serious: as screwy as the enigmatic little robot was, he wouldn't send an Interrupt Alert without good reason. Still I was busy elsewhere; several hundred citizens were dying, seismic eruptions were playing hob with the complex and it was my responsibility to repair the damage.

"That robot is no longer functional" the filtering computer coldly informed me when I got around to asking for a location report. Dead. The little fella was gone.

The dysfunction of a solitary conglomeration of metal, wires and high impact plastic should not have disturbed me as much as it did, but this was Poet. No longer would I be treated to his nonsensical ramblings punctuated with dollops of common sense, his robotic wit, and his slightly skewed way of viewing the world. Losing Poet was bad enough, but, in addition, Iris was blind and Waldo was not sure how to repair her, Auda was sensing intruders in the Sterilization Chamber, and breaks were detected in the Maintenance Access. Whiz might have been able to help me solve my mounting problems . . . if only he was plugged into the correct pedestal.

In grief and despair I quit the game. Cyro-life was not worth living without Poet. Perhaps he could be repaired; but did Bambi repair his mother? It was just a warm-up round anyway; winning Infocom's *Suspended* is a marathon that requires conditioning.

Unless you've been in cryogenic freeze yourself for the last year or so, you're aware that Infocom's games are totally textual, or "participatory novels" as some have dubbed them. We're fortunate that the first practitioners of this new art form are polished, intelligent, witty, and imaginative as, for example, Michael Berlyn is. Berlyn is the author of *Suspended*, and he has lavished a good deal of complexity and eccentricity into his game. I recommend it. Further, in my judgement, no intelligent gameplayer's collection is complete without at least one Infocom game.

In *Suspended*, you take the role of the central mentality of the Contra Complex; you have been lifted into a state of limited cryogenic suspension, half-awakened into a world in perpetual collapse. Your immediate objective is to keep the underground complex running smoothly; your overall objective is to reset the all-important filtering computers.

To help you overcome the rapid-fire problems that come your way, you have been given six robots to command. You have also been given a game board with pieces that will help you keep track of the complex and your robots.

The robots all have different functions, specialties, and quirks. Auda monitors all auditory stimuli. Sensa reports on the seismic and vibrationary patterns of flux in the city. Iris' function is to keep tabs on the various control and weather monitors. Whiz, the brains of the outfit, is able to plug into the various advisory pedestals. The Heinleinian Waldo is the workhorse; with his multiple extensions he can do most anything. Then there is Poet. As his name suggests, Poet is slightly more playful, though no less rational, than his peers. With comments like "I'm Zen on Inventory" and "As much as anyone can be anyplace, I'm here", Poet relieves tension and frustration, a walking martini.

The other robots are not complete stiffs either. Waldo, when asked to perform a task he considers difficult, will reply, "You have just entered the zone whose boundaries are those of the wishful thinker." Meanwhile, Iris might be plaintively sending, "It would be real nice if I got repaired."

Speaking of Iris, a hint or two: at the beginning of the game, Iris is isolated from the others (because a crucial corridor is blocked) and is

blind. The first order of business is to repair Iris. With Iris functioning, the game is, well, *playable*. To get to her, to pass the impassable, a wedge is required. I will say no more.

The player has a vocabulary of six hundred words with which to communicate with his or her robots; the text itself, of course, contains a much wider vocabulary. We'll close with Poet's reply when asked to describe Iris: "Iris is the personification of petite beauty. As the old timers say,

The young lady always wore mink
While her visual circuits went 'blink'
The young man's delight
Night after night
Was her blushing a bright shade of pink.

—R.J. Michaels

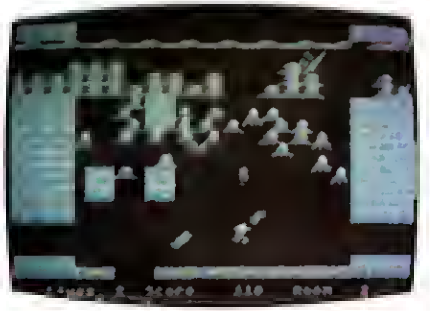
SHAMUS: CASE II

Synapse Software
Atari 400, 800 or 1200
32K (disk or cassette);
16K (cartridge)

Shamus n 1. slang: policeman 2. slang: a private detective. (Webster's New Collegiate Dictionary)

This meaning probably is derived from a Yiddish word jokingly used

RAMblings



to describe the similarities between a church attendant or gravedigger and a store detective. The villain is still the Shadow. But our hero is no longer the Shamus—he is William Mataga, author of *Shamus: Case II*. Unlike so many other follow-ups to or take-offs on successful games, it is not disappointing. Far from it. While remaining consistent with the original storyline, *Shamus: Case II* brings varied and exciting new aspects of play to the game.

You may remember from the original game that our friend the Shamus had to hunt down his arch-enemy the Shadow in his lair. The lair turned out to be a maze—visible only one room at a time—filled with mechanical nasties which you had to shoot. *Shamus* took on aspects of an adventure game because you were forced to draw a map to find your way around in the maze and you had to match colored keys with locks to get through certain passages.

Shamus: Case II retains the adventure-game overlay on a basically arcade-type game. Once again you'll have to traverse a maze filled with deadly horrors. This time you'll fight underwater creatures and work your way up to the Shadow's throneroom. There are still keys which must be found and carried to the correct locks. And, you will still need a map to find your way around, although this time the game itself provides a basic map. But the arcade aspects of the game—whew! There are three kinds of rooms through which you must pass. They appear on the screen one at a time—no scrolling.

The first type of room has horizontal passageways connected by ladders. Some of the passages are high enough for the Shamus to get through, although he may have to jump over an occasional pit filled with poisonous snakes. All of the passages, however, are large enough for the slavering snakes which patrol the lair and have, shall I say, an unpleasant bite. In these rooms, you will find boxes which may contain extra lives, a key, a lock, or something else. Because many of the passages are too small for the Shamus, he may be able to pass through rooms in only certain directions. For example, he may be able to exit left only when he enters from below and exit right only when he enters from above. Playing the game in these rooms has the flavor of *Donkey Kong* or *Apple Panic*.

The second type of room is just a connecting passageway, open above, which presents three dangers. As you cross the room, a snake may overtake you. Or, the floor of the room may have gaps. In either case, a well-timed jump may save you. The last danger is the Shadow who, not content to wait for you in his throneroom, may appear overhead and hurl missiles down at you.

The third type of room is a chamber filled with crustacoid mutants. This is the only place the Shamus can use weapons. He is armed with plasmar detonators which will destroy whatever enemy they hit then bounce around until they hit another or go off the screen. Since only two detonators can appear on the screen at once, slow, well-aimed salvos will be more successful than rapid fire. The Shamus can move around the lower portion of the screen and fire at the mutants as they descend from above.

And fire you must since thirty or more individual mutants may descend in each wave. In addition to the missiles they fire, the mutants' touch is deadly. Even worse, every mutant which the Shamus does not kill will continue off the bottom of the screen, wiping out a section of the floor. If the entire floor goes, the Shamus will fall into a lower room in the maze.

Between waves of mutants, a bird will fly overhead, dropping bombs. If the Shamus can shoot it three times, the bird will turn into an energy ball and destroy any mutant with which it comes in contact. Before descending, the mutants pass along the top of the screen in rows, just below a row of snakes. A well-placed plasmar detonator can bounce between the snakes and the mutants, destroying many of them and racking up a lot of points.

After two waves of mutants have attacked, or if all the snakes along the top of the screen are destroyed, the Shamus will automatically be elevated to the next room. Playing *Shamus: Case II* while in these chamber rooms is something of a cross between *Breakout* and *Space Invaders*.

As you progress through the game, you will gain extra lives for the Shamus each time you find a key, open a lock, find a box with two lives in it, or reach certain point scores (10,000, 30,000, 50,000, etc.). Also, the game will become gradually more difficult. Snakes in the passageways will appear more often and move faster. The rungs in ladders will disappear and reappear. The waves of descending mutants will become longer. And then

there's that last room before the throneroom. Fans of the original Shamus will have to find a whole new way to deal with force fields.

A new feature in this game is the map. By pressing the space bar, you get a black and white map of where you have been. Actually, the map will show every room which has been explored in any game since you last booted the disk. This is most useful as a pause feature. I still find it necessary to draw a map on which I can record room numbers, objects contained, and one-way passages.

The only shortcomings of *Shamus: Case II* relate to its adventure-game qualities. First, rooms connect in the same ways and contain the same objects in every game. Since you start each game from room zero, play can get repetitious. Second, once you have completed the maze and defeated the Shadow, it may be hard to come back. Even though the arcade qualities are great, you feel that you have finished the game. True, there are four levels of play, progressively more difficult, but the logic of the game remains consistent. All of this is offset somewhat by the difficulty of reaching the Shadow's throneroom. Realistically, it will take many hours of practice before that one twenty-minute game where you finally dash through the maze.

Shamus: Case II boots with a title screen and an Alfred Hitchcock theme. The score from the last game is displayed. I'm afraid your high score recording is still relegated to pencil and paper. Pressing START will cause a short disk access so you must leave the disk in the drive to replay. At the bottom of each screen, the number of extra lives, score, room number, and a key (if you are carrying one) are displayed. The sound effects are good; the graphics, high-resolution; and the attention to detail, excellent.

—Richard Herring

CREEPY CORRIDORS

Sierra On-Line

Commodore VIC-20

The Creepies—a motley collection of goblins and monsters—aren't very smart, but they'll get you anyway through random harassment and perseverance. In *Creepy Corridors* from Sierra On-Line, Inc., the purpose is to move through maze after maze, collecting the diamonds from the four corners of each. The Creepies silently glide through the maze, and if they bump into you, you're done.

You can shoot the critters if they're in front of you, but they have a habit of coming at you from all sides. As soon as you have collected the four gems at one fevel, you must maneuver over to a magic door. The door leads to the next maze, complete with more diamonds and more Creepies.

Since the Creepies really don't have much common sense, it is possible to stop, set up an ambush, and nail them as they move through the passageways toward you. That works for all creatures except the skufls. They are impervious to your rifle shots. When the skulls come after you, run fast and don't hit any walls.

On the screen, you have a bird's-eye view of the two-dimensional maze. The mazes are more difficult to manage at higher levels. Afso, there are more creatures to worry about. It's always a relief to collect that last gem and run through the safety of the magic door.

The game as reviewed is in a ROM cartridge for the VfC-20. It is available for other computers as well. Either joysticks or the keyboard may be used to maneuver and to shoot. The keyboard seems more convenient since the spacebar must be used to stop in the maze. The keys may be redefined, if desired—a very nice feature which should be incorporated into more games.

The graphics and cofor are good, the sound minimal but effective. The action is very smooth. Increasing levels of difficulty are properly paced so that it is fairfy easy to succeed at first, but the upper levels require a fot of practice.

There are no lofty goals, and only minimal strategy is required. You need quick reactions and plenty of time to master this well-written game.

—Dale W. Rupert

"They sure don't make horror movies like they used to."

The Strategic Scenario

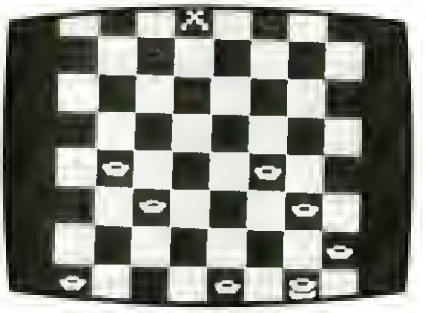
By Leonard Herman

There are a wealth of games available that let your fingers do the walking . . . and your brain do most of the work!

The centuries-old notion of man v. machine has come to frivolous fruition with the introduction of videogames. Alas, the human being seems to be the loser in this interesting battle.

In the majority of videogames in which you play against the computer, the computer is ultimately and inevitably the victor. The thrill of victory is earned only when you beat a previous high score; you are only winning over another human opponent, or yourself. In the long run the omnipotent computer is always the winner.

Fortunately for owners of the Atari 2600 who want to win against their opponents but not surrender to the machine, there are games which allow you to play strategically, rather than accepting challenges which the computer serves up. These strategic games allow you and your opponents to plan your moves; the player with the more shrewd strategy will ultimately be the winner. The game doesn't end when both players have lost their final turn, with the high score determining the winner. The game ends because one competitor is out.



Checkers *from Activision*.

One should not equate strategy games with adventure games. Adventure games are those games in which a single player sets out on a quest in order to find something. Strategy is not involved; most of the time you are wandering through different screens in search of certain objects. No, to play a game strategically, you must have some kind of plan when you begin. Because 'strategy' is often associated with the military it can be assumed that there are two sides engaged against each other, and that is why some sort of strategic plan is needed. Thus, an adventure game which is played by one person cannot be considered a strategic game. You may play it strategically but it will be a one-sided affair since you aren't playing against anyone. Certainly the computer isn't playing strategically since it is always following its programming.

Although 'strategy' is a military word, of the twenty or so military games that are available for the 2600, only one could really be considered strategic. The majority of the games, such as Atari's *Battlezone*, *Air-Sea Battle*, and *Submarine Commander*, are merely different forms of target games. Only M-Network's *Armor Ambush*, a two-player tank game, allows for strategic play.

In this game, you and your opponent each have two tanks to choose from; these can be alternated throughout the game. You lose a tank when it has been shot three times by the enemy. You can plan your strategy right from the beginning. If you think it will be to your advantage to have your opponent go after your vulnerable tank while you go after his or her operating one, definitely follow this plan. You can also take into account the terrain as you plan your line of attack. Your tank will drive fast on roads, slower on grass, and slowest through water. You can plan to go after your opponent by coercing his/her tank towards the water as you travel on the roads. Because the game consists of several playfields, no two games will ever be the same. The winner of this

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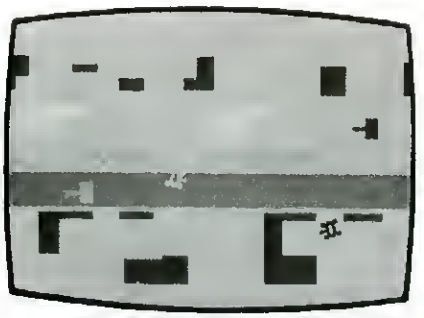
Leonard Herman is the author of the forthcoming book ABC to the VCS (A Directory of Software to the Atari 2600).

match will definitely be the player with the more sound strategy.

The description of *Armor Ambush* will lead 2600 owners to think of *Combat*, the antiquated war game which accompanies all 2600 consoles. Like *Armor Ambush*, *Combat* includes "Tank," another military tank game in which two players pit themselves against each other with tanks. However, this cannot be considered a strategic game since the players can not map out their battleplan. "Tank" is merely a game in which you must shoot your opponent more times than he shoots you within a specified period of time. Real war, as you probably know, is not fought within a time limit. In "Tank" you know when the game will end and nothing you do can change that.

War has been a way of life since before historical record; throughout the ages war has inspired boardgames that have since found their way into the videogame circuit. Among the oldest strategic games which began as boardgames are *Video Chess*, *Checkers*, and *Othello*. *Checkers*, which is available from both Atari & Activision for the 2600, and *Othello* are both excellent strategy games. Both games are easy to learn but very difficult to master, and both games are suitable for two player competition. Both games can also be played against the computer, but the strategy that you customarily utilize in solo games may not work. Why? Because when you play against the computer, you can't trick it into anything. Since the computer monitors every single move, you can't plan on 'sneaking' up on your opponent and making a surprise attack. A human opponent may not look many moves ahead (unless (s)he is an expert player) and you can therefore complete a surprise attack. For this reason, *Video Chess* cannot be included in a list of strategic games as this is a one-player only game.

But there are games available for the 2600 with non-war themes which still make excellent use of strategic situations. In *Surround*, one of the oldest games available for the system, you and your opponent each control a constantly moving on-screen cursor. As the cursor is moved, it leaves a solid line in its



Armor Ambush: *not just combat.*

wake which neither player can run into without losing a turn. The object is to contain your constantly moving opponent, to force him/her to crash into one of the walls. You score a point whenever you stop your opponent; the first player to score ten points is the winner. You must plan the moves you are about to take, and you must do so quickly. Remember, you want to close your enemy in without getting closed in yourself.

Flag Capture is a video version of the old boardgame classic, *Stratego*. In the boardgame (which is also available in an electronic edition) you must set up a plan to find the flag through trial and error while avoiding bombs. In a way it resembles chess in that each piece has its own function and some pieces outrank others. The unique facet of *Stratego* is that each player only knows what his/her pieces are. Although you can see what each of your pieces are worth, you can only see the back of your opponent's pieces and therefore can't see what their value is. The object of the game is to strategically set up your pieces and then break through your opponent's setup and capture his or her flag before (s)he can get to yours.

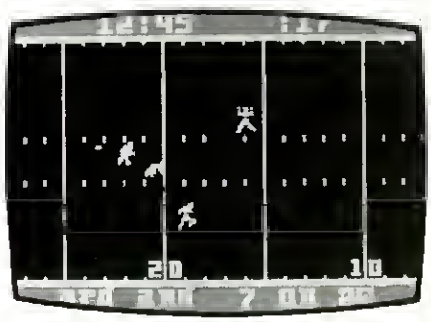
Flag Capture, in which you must also capture a flag, is *Stratego minimo*. Confrontations between players are eliminated in this stripped-down version: each player controls only one piece and the object is to find the single flag first. The flag is hidden somewhere within a grid of sixty-four squares. Every time you land on a square, a clue is revealed which gives the direction is which the flag can be found. You may also land on a bomb which will send you hurtling back to your original position.

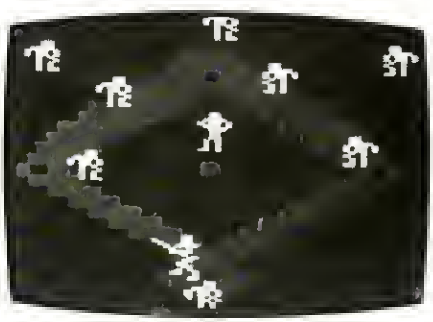
Flag Capture may be played head-to-head in two different ways, each offering its own type of strategy. In one variation, both you and your opponent move your pieces through the board at the same time. In addition to paying attention to your own clues, you must watch for your opponent's as they will also lead you to the flag. Time is an important factor here since both players move at the same time. In the second variation the two players alternate turns in the search for the flag. Again, the person who discovers the flag will score the point. Although *Flag Capture* doesn't involve as much strategic skills as the previously mentioned games, its resemblance to *Strate*go makes it worth mentioning.

U.S. Games' *Entombed* is the only game that is as much fun for one person to play solo as it is when two people compete head-to-head. The two-player version, however, is much more challenging and involves strategy.

The action in this game takes place in a maze which continuously scrolls upwards. Each player controls an on-screen explorer who must go into the maze and head towards the bottom of the screen. Unfortunately some trails lead to dead-ends which cannot be seen until that portion of the playfield scrolls onto the screen. By this time it may be too late to back-track because the entrance to the passage may have alrady scrolled off the screen. If your character stops moving it will be dragged towards the top of the screen as the maze scrolls upwards. Players lose a turn whenever their on-screen character scrolls off the top. Each player begins with three turns and the first player to lose all three lives is the loser.

Entombed strategy involves interfering with your opponent's ability to move through the maze. Initially each player begins with one 'make-break' which allows you to blast a hole in a wall if you run into a dead-end. However you can also use 'make-breaks' to build walls. Occasionally you'll run into blinking blocks which will award you additional 'make-breaks.' By using your 'make-breaks' to build walls, you can strategically plan to trap your opponent behind some walls after (s)he runs out of his or her own





***Sports illustrated:* Super Challenge Baseball, RealSports Football, *and* RealSports Baseball.**

'make-breaks.' The game becomes especially agonizing when both players have the same number of 'make-breaks' and are both on their last turn. Any false move to try and hold back your opponent may end disastrously for yourself!

Atari's *Slot Racers* is a head-to-head racing game in which you must blow your opponent off the road with a cannon that is mounted upon the hood of your car. Each player's car travels in opposite directions within the maze and must avoid the bombs that are fired from the opposing car. If you run into a bomb, your opponent will score a point. You can control the speed of your car as well as the routes that it takes. The bombs that you fire can be programmed to move in a straight line or turn at every curve. *Slot Racers* is a fast-paced game and may seem confusing if you just move around and fire at will. The best way to play is to take command of the situation and plan your moves.

Even sports games, which can be considered as modern 'civilized' forms of warfare, can be played strategically. Although some video sports for the 2600 such as Atari's *Basketball* and the three versions of *Soccer* involve certain types of strategic moves, it is the three football games which make the best use of strategy. Atari's *Football*, *Realsports Football*, and M-Network's *Super Challenge Football* all allow you to input plays which your on-screen characters will perform. Of course, once the play is selected, the game will depend upon your finger-skill. However you can play strategically by inputting certain plays and trying to guess how your opponent will respond.

Baseball for the 2600 is a different story. Atari's *Home Run* and M-Network's *Super Challenge Baseball* offer simplified versions of the game in which you merely decide upon your pitch when you are in the outfield, and try to hit the pitch when you are at bat. No strategy is required. *Super Challenge Baseball* goes a little beyond *Home Run:* you are given the option of whether you want your lead runner to steal a base or not.

Atari's *Realsports Baseball*, on the other hand, gives you the opportunity to play strategically. As in the football games, you must first input information on what you plan to do. If you are playing the field, you must decide whether you want to pitch a ball or strike. If you are at bat you must either bunt, hit a grounder, or a home run. The results depend on the combination of what you and your opponent program. As with the football games, it finally comes down to trying to outguess your opponent.

Even with the lack of a multitude of strategic games for the 2600, the future still doesn't look bright for fans of this type of game. Most companies are releasing games for solo players and, as noted in the beginning of this article, strategic situations only work when players compete head to head. Still, it isn't as bad as it could be. One company, Avalon-Hill, which is best known for its long line of strategic board games (*Diplomacy*, *Blitzkrieg*) is now producing high-calibre video games for the VCS. Although its initial games, *Death Trap*, *London Blitz*, and *Wall Ball*, are solid, playable games, they are all single-player games and don't lend themselves to strategy, as we have defined the word here. However, using the company's background as a guide, it is safe to say that if any company will make strategic games for the VCS, it will be Avalon Hill.

Parker Brothers is another company with a background of strategic boardgames that is producing games for the 2600. As with Avalon Hill, no strategic games have been released yet. However the company has translated one of its best strategic board games, *Risk*, into a video verson for the Atari computers. In the works are other strategic games such as *Monopoly* and *Clue*. It is just possible that adaptations for the low-memory 2600 might also be in the works if they are feasible.

Unfortunately, the current trend in home videogames calls for single player arcade adaptations. The major selling point in games is graphics flash. Not much programming remains to allow for strategic, head-to-head play. This is all well and good, but we can't help but yearn for the day when the player's intelligence becomes equally important as his/her reflexes, and interaction is created between *people*, rather than between man and machine. □


London Blitz *and* Death Trap, *from strategy-game king Avalon Hill.*

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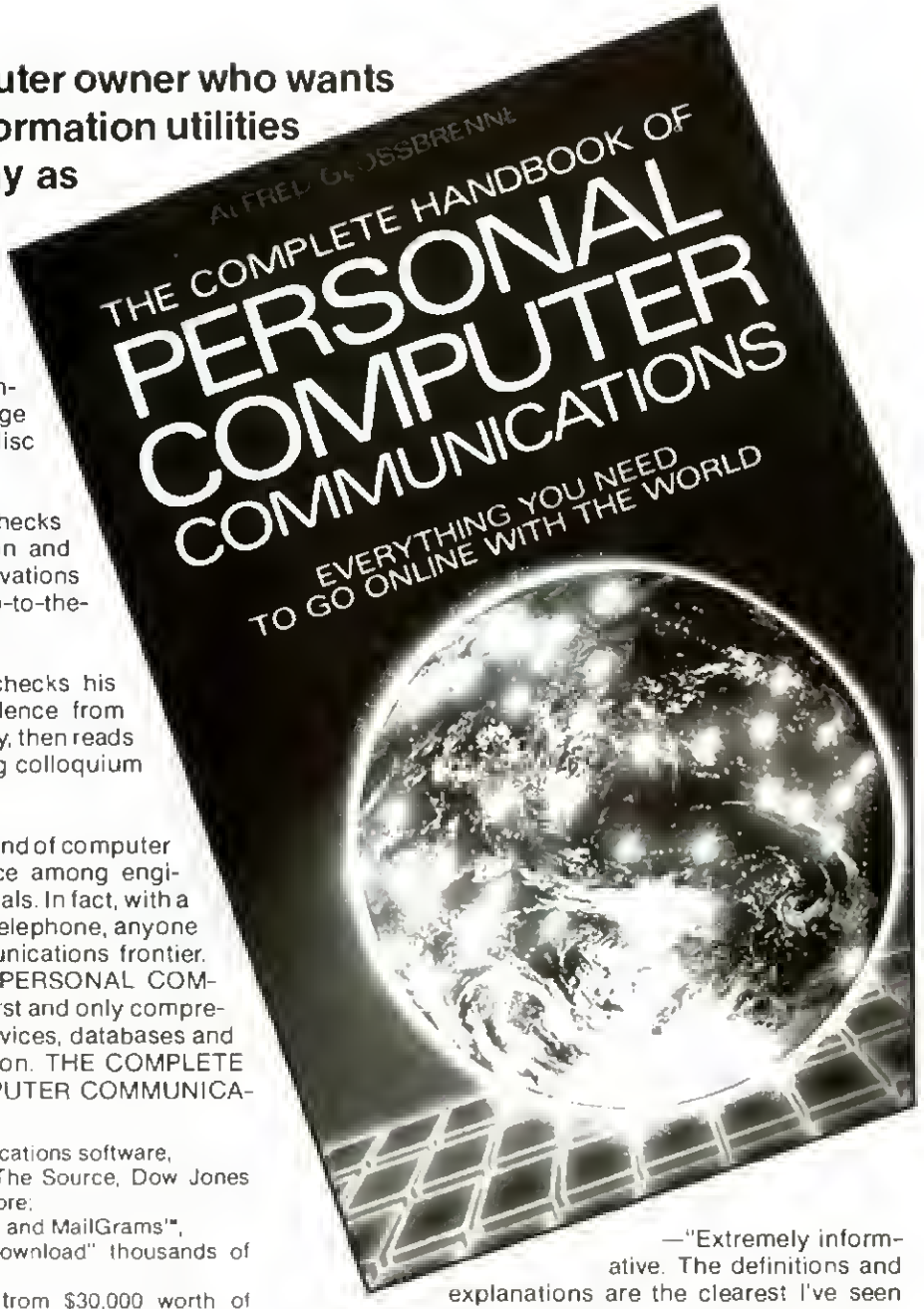

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The Golden Gateway

By David Ritchie

In an operating room in the not-too-distant future, a patient is on the table for a brain operation. At first glance nothing looks too unusual about the surgical procedure—until one notices the smalf plastic object on the surgeon's table. It looks somewhat like a plug-in attachment of the kind used on stereos and home computers, only this one is larger and more complex, and it has no wire prongs to fit into receptacles; instead it has tiny wirelike projections made out of stiff organic compounds. In a few minutes this "plug" will be part of the patient's head.

Slowly and painstakingly, the surgeon puts the plug in place upon the subject's left temple. A flange holds the object firmly against the bones of the skull. Set in place, the little attachment looks rather like the bolt through the neck of Frankenstein's monster, in the movies—only this "bolt" appears to be passing through the frontal lobes of the brain. But the implant is small and will be unobtrusive, once the patient's hair has grown back long enough to cover it.

The surgeon finishes installing the first unit in the patient's head, then repeats the procedure on the other temple. The end result is two small flesh-colored protuberances on opposite sides of the skull.

Again, this patient has remained conscious through the operation, his comments helping direct the surgeon's moves. But at the end of this surgery, the patient will be quite a different person than he was before. He will suddenly have access to a vast and heretofore unexplored new world of mental activity. He will be able to think as no one has ever thought until now. He will have a binary brain—for those littfe additions to his temples will connect his natural, human mind with the man-made "mind" of a computer. What will happen then, the worlds of science and medicine are waiting breathlessly to see.

Scenes very much like this one may take place within our lifetimes—perhaps within the very near future—because of a new field of computer technofgoy, so fantastic and staggering in its implications for our future that it sounds more like wild fantasy than fact. It is known by several technical names, among them *organic data procesor.* Most call it simply a biochip.

A biochip is precisely what its name implies: a microprocessor built along biological lines rather than out of nonorganic materials such as silicon and gallium arsenide. Biochips are nothing new in the natural world; they have existed since the first specialized nerve celfs developed, back in the Paleozoic. Humans, however, have improved considerably on the design of natural "biochips," shrinking their dimensions and packing more computing power into them. The man-made biochip operates on the same cybernetic principles as the gray cells in your brain—only the biochip does its job much more quickly. And as we wilf see in a moment, a practical biochip would have many advantages over silicon-based computers as well.

Although biochips are made up of complex organic chemicals, their structure and function are basically easy to understand. In fact, you can use a few common items found in the kitchen to build a model of a biochip unit.

Clear a space on the kitchen counter. The counter top here represents the "base" of the biochip, a complex protein known as the "oriented antigen monolayer." Now make up about two ounces of sticky bread dough and pface a small blob of it on the counter. The dough stands for a kind of organic adhesive called a "peptide." Into the dough, insert an upright breadstick. This represents a big molecule called a "monoclonal antibody," which is

produced by genetic engineering.

After making sure the breadstick is fixed firmly in the dough, add another glob of dough to the top of the stick and mount on it another, shorter breadstick. This upper piece of breadstick stands for a second monoclonal antibody.

You may have guessed by now that the two breadstick "antibodies" are supposed to be connected somehow other than with the dough "peptides"; and you are right. Take two bits of the remaining dough, put each of them on the "feaning" side of the breadsticks, and string between them a strand of cooked spaghetti about four inches long. In a real biochip, this "spaghetti" is something called a "molecular electronics switch array," a lengthy string of organic molecules that forms between peptide anchor sites on the sides of the antibodies, joining the upper and lower parts of the structure with a switching apparatus that lets the two antibodies pass signals to each other.

This carbohydrate Rube Goldberg device is almost complete. It needs only one more part—something to represent the "gate" that lets impulses into and out of the system. Using a toothpick, mount a marshmallow on top of a cherry tomato. Then set them, cherry tomato on the bottom, next to the lower breadstick, opposite the spaghetti strand. Use your last bit of leftover dough to secure the marshmallow to the side of the breadstick, so that the whole assemblage will stand by itself. The marshmallow here models an enzyme, and the tomato a metal compound. Together they form an in-and-out pathway for signals.

The actual biochip does not have to be assembled so directly by humans as our little model does. In fact, the biochip practically grows itself. Just throw in the right chemicals under the proper conditions, and nature does the rest. There is no need for big ovens to bake silicon chips, e-beams to carve patterns in them, painstakingly drawn masks to photolithograph patterns on the oxidized discs. Organic chemistry takes care of the whole process. And the result is a circuit density far greater than anything humans could hope to achieve with conventional methods. Today a chip can hold perhaps 50,000 to 100,000 bits of information. A biochip could hofd *50 billion to 100 billion*—a milfion-fold increase. One trillion biochips could fit on a postage stamp; a hundred trillion on a postcard. If you have trouble visualizing these figures, think of them this way: recording information on biochips, you could fit a ten-volume biography of every individual human on earth into an area about the size of your thumbnail—and still have storage capacity left over.

But compactness is only part of the marvel of biochips. A biochip could work much faster than a conventional integrated circuit. These things are as quick as they are tiny. A biochip would operate perhaps 10 billion times faster than the most advanced home computers in use today. To put it in more easily understood terms, the biochip is like a person who can do a job in one second, as opposed to his fellow worker who takes half an hour. It is easy to see which of those workers an employer would prefer to hire; it is equally easy to understand why business and industry are taking such a keen interest in biochip technology. It could make smart machines still smarter, tiny microprocessors still smaller, supercomputers yet more super.

Cost? Probably very reasonable. Nature has done most of the "design work" already, in the pro-

cess of evolving our biochemistry.

Assembly would be little more than a matter of cooking up the right kind of "soup" in which the biochip components could assemble themselves. And there would be no need to chill this kind of organic computer, because biochips would not produce excessive amounts of heat. They would be powered by enzyme reactions instead of heat-producing electricity. Cool, compact, capacious, and consummately fast: that about sums up the promise of biochips.

How close are we to developing a practical biochip computer? Opinions differ here. Some conservative scientists think such a computer, if possible at all, will have to wait until well into the coming century. Other computer experts are less skeptical. They think a few hundred man-years of work—not much at all, by the standards of 1980s R&D—could produce the first working biochip components.

Biochips. We have them, in the form of nerve cells. Computers may soon have them in the form of ultrasmall chemical complexes. What would happen if the twain should meet?

Suppose there were some way to form a bridge, or an interface, between the biochips in a computer and the cells of the human brain. What if we could connect the computer, that remote annex that we built for our mind, with the very mind that gave the computer birth? Each system has been evolving in its own way, developing its own special set of expert abilities. The human brain has a vast complex of vague and mysterious but invaluable skills; the computer has the gifts of tremendous speed and all but unlimited storage capacity. What if the two could meet directly, instead of communicating through the slow and indirect media of sight and hearing? What if the computer could enter the human mind, like two persons meeting in a room? And what if the human mind could browse directly through the "mind" of a computer, like a bibliophile visiting a rare book store?

In that case, the two branches of evolution—Darwinian, as represented by our own minds, and Lamarckian, embodied by the computer—would come together in a grand synthesis—a sum that might prove much greater than all its parts.

Idle fantasy? Perhaps not. The biochip has a feature that might make a melding of machines and men a reality on the intellectual level, almost as soon as biochip computers see the light of day.

They may literally see that light, because biochips are being considered as a means to restore sight to the blind. The protein used for the base of the biochips can bind with nerve cells and, at the same time, conduct an electrical current to and from tiny electrodes leading to sources outside the body. In this way the biochip materials could supply a direct link between the human brain and a powerful biochip computer. The human and the organic machine could then form a single system, like the natural brain and eye. A computer would view the world around it through a television camera or other optical device, convert the picture into signal form, and feed the signals right into the vision centers of a blind person's brain—thus restoring sight. This technique is taken so seriously in some quarters of the scientific community that as of this writing (1982) the National Science Foundation (NSF) is funding research on ways of "gluing" biochip proteins to neurons.

Biochips, then, could lead to artificial eyes—maybe eyes better than our natural ones. If the computer took its images from special cameras—say, infrared imagers, which convert heat emissions into visible pictures—then someone on the other end of the biochip link could see things as no one has ever seen them before. Imagine being able to see heat, or ultraviolet

radiation, or even radioactivity, as plainly as you now can see the glow of a lightbulb. That is only one of the marvels that biochip technology may make possible in the next few years.

Biochips might also provide the so-far missing link in a fantastic technology known as "telepresence." That expression was coined by Marvin Minsky of MIT, and describes a setup in which a person could experience all the sensations of flying a plane, or driving a lunar rover across the moon, or whatever—without ever leaving a comfortable chair on the ground. Minsky imagines feeding sensory input from some distant device (say, the wingtip cameras and motion sensors of a plane in flight) by telecommunications to an operator some distance away. The operator could then fly the plane on the basis of what the relayed information told him. Only he would feel as if the aircraft *were his own body.*

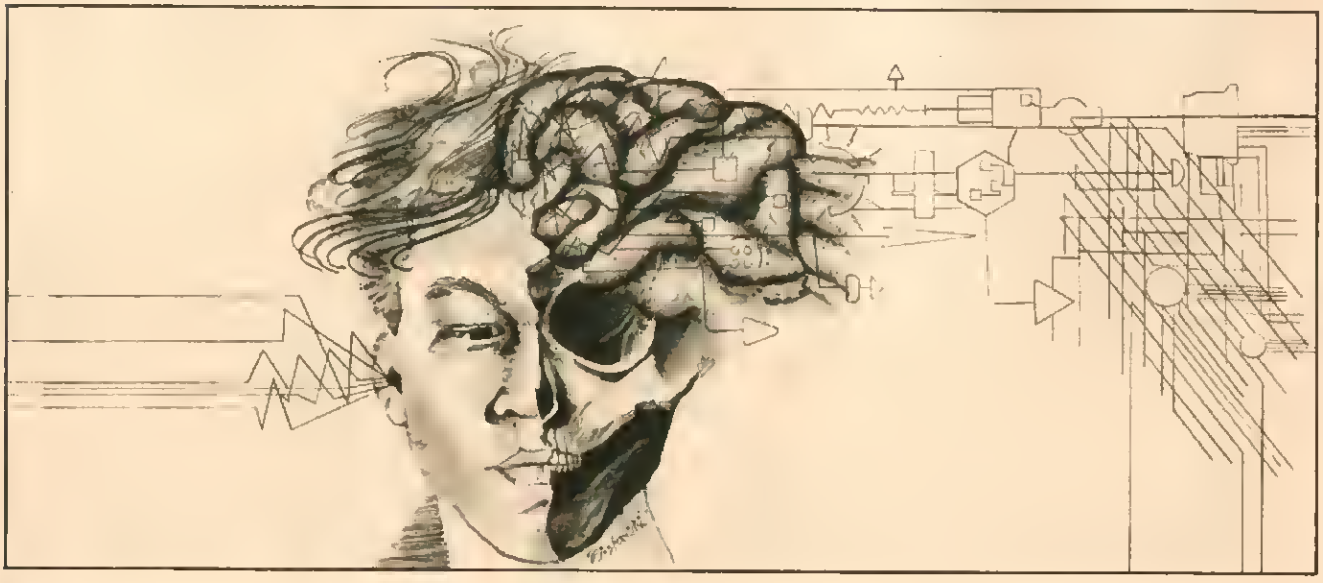
Telepresence is a fascinating concept, and one can easily see how it could help to save memory, time, and lives. It could enable us to visit and work in all kinds of hostile environments without subjecting ourselves personally to risk. A telepresent person could guide a submarine along the sea floor or a tank across a battlefield, without facing the perils of abyssal pressures or shot and shell.

Telepresence would be hard to arrange, using present-day technology. But with biochips the problem of melding men with machine might be solved. Simply transmit the data from the tank or plane or whatever to a biochip computer; transfer the data, as electronic signals, from the computer to conduits leading to the brain; and the signals will flit across the protein layer between electrodes and neurons, giving the telepresent operator as good a perception of the distant scene as if he were on the spot.

Remember, we are talking here about a technology that is just around the corner, if not here already. Biochips could lead to the development of all manner of man-machine combinations, from better artificial limbs to—what? Can we imagine the ultimate development along these lines—a synthesis of human and artificial intelligence?

Indeed we can. The day may be approaching fast when you will be able to join your mind with the powerful intellect of a biochip-based AI system, and think in ways and at speeds that are impossible for us now. With a "mind link" of this kind, you might be able to follow the computer as it solves a complex problem in multidimensional analysis. The computer would handle a "blob" of data existing in perhaps ten or twenty dimensions. And with the biochip link, you could see, as clearly as you see this book with your own two eyes now, that great mass of data pulsing and bulging in ten or twenty different directions at once as the computer operates on it.

The possibilities are marvelous to contemplate. You could plug into a computer's memory banks almost as easily as you put on your shoes. Suddenly, your mind would be full of all the information stored in the computer. You could instantly make yourself an expert in anything from Spanish literature to particle physics. The memory unit need not be large. With biochips to hold the data, all the information in the MIT and Harvard libraries might be stuffed into a volume no greater than that of a sandwich. All of Shakespeare in a BB-sized module. All of the known facts of chemistry in a unit no bigger than a peach. You may see devices like this before this century ends. Already biochip units, for use in tandem with the human mind, are getting such serious attention in some circles that the gadgets have a name: *transmogs,* short for *transmogrifiers.* John von Neumann would have been delighted. He once pointed out how quickly the flood of information is outpacing our ability to keep up with it, and used an illustration from his own field, mathematics. There was a time not too long ago, he said, when a mathematician could be expected to know, if not master completely, all the branches of math. Now our mathematical knowledge is expanding so fast that even an expert in mathematics, devoting a lifetime of study to it, could reasonably expect to know only about ten percent of it all, at the very most. As long as we depend on the crude input systems of sight and hearing, and the limited storage capacity of our own natural brains, that ten percent figure is



likefy to keep dropping. But with transmogs to store information for us, and biochip "interfaces" to help feed it into our minds, we might reverse that trend—and start pushing that ten percent figure back up toward one hundred. Biochips could give us a life preserver, so to speak, that would allow us to keep our heads above the flood of new information.

Information. Ultimately, everything is information. You, as an organism and a personality, are made up of information. Society is made up of information. Economics, technology, resource allocation—all of them are matters of information. And all the problems of our world, from pollution to overpopulation to famine to war, exist because our information supply is inadequate.

With that thought in mind, take a walk through the Berkeley campus. This campus is where the Free Speech movement gave rise to the campus upheavals of the sixties, and at Berkeley the students still speak out, through handbills and posters and graffiti, on every problem under the sun. All the horsemen of the Apocalypse are discussed on Berkeley's walls and bulletin boards, plus a few more recent specters brought in to swell the calvary of doom: nuclear waste, mind control, and so forth. How are we to deaf with the woes that face our world? The Berkeleyites have plenty of suggestions. "'Gfobal socialism," one handbilf advises. "Laissez-faire," says another only a few inches away on a bulletin board. Throw a rock in Berkeley, and chances are it will hit someone's slogan for saving society. Some are intriguing. Some are downright weird. And some are simply naive. On a wall near the gym, some zealot with a spray can has scrawfed, "THE WORLD NEEDS JESUS!"

What the world *really* needs is a better way of handling information, because information is all-powerful (a fact which the Bible, interestingfy, acknowledges when it describes the Almighty God in terms of information units: "In the beginning was the Word, and the Word was with God, and the Word was God."). Without information, nothing can happen. But *with* the right information, virtually anything is possible. And by coming up with the proper information, one can turn want and war into peace and plenty. The question is, how and where to fook for the information we so desperately need?

There are two places to search, because there are two kinds of knowledge: know-what and know-how. Know-what consists of all the little individual bits of information kept on record—names, dates, measurements, and so forth. Know-how is an understanding of how to apply that knowledge to practical tasks.

Neither kind of information is much good without the other. Take the case of electromagnetism. Up to the nineteenth century, science had accumulated a lot of know-what knowledge about the phenomenon of electricity. But that knowledge was largely disorganized. We were unsure just how electromagnetism behaved, because we were ignorant of the laws that govern its workings. Then James Clerk Maxwell supplied the crucial bit of know-how: a set of equations that described electromagnetism perfectly. Maxwelf's equations made it possibfe for us to master electricity, and the results of his know-how contribution are all around you, from the telephone in your bedroom to the spark plugs in your car. Satellite communications, efectronic fund transfers, electric-eye doors—these and millions of other advances all sprang ultimatefy from that one piece of added know-how. This is what information can do.

Most likely the information that would cure cancer and solve our energy woes is sitting on a shelf somewhere right now, waiting to be pulled out and put to use. If we could only assemble all that know-what information, plug it into the necessary know-how, and put it to work, the result might be a golden age of peace and prosperity for all the peoples of the world. Is there any way to join alf of our know-what knowledge with all of our know-how?

Perhaps there is.

ff we can fuse computers with the human mind, through biochip technology, then these two great bodies of knowfedge wifl come together in a single man-machine system—a binary brain. The computer will provide virtually endless and infallible memory, plus prodigious powers of data-crunching. The human brain and mind will supply all that special know-how that a human acquires, both as a being in a physical body and as a part of society. Each part of the system will give the other something it desperately needs but lacks. And the two avenues of evofution—Lamarckian and Darwinian—which diverged with the invention of the first computers, will come together again, like the themes of a fugue at the close. The results will be more awe-inspiring than we can imagine. We can no more envision the deepest workings of such an intelligence, than a dog can understand the stars.

Look up at the stars some evening, and think back to Pascal's probability theory. Had Pascal lived on another world, what odds would he have given the evolution of intelligent life down here? Probably very slim. Here on our world something highly improbable occurred. Intelligent life not only evolved, but also endured and thrived. If it did so one planet, then there is a reasonable (if small) chance that out of every hundred million or so star systems, a few intelligent forms of life appear, beat the odds, and survive. And perhaps, in the history of every intelfigent species, a time arrives when society faces the same need we do now: the need for a better brain. A binary brain.

Perhaps those that do make the jump to binary brain status continue to live, and wind up turning cartwheels all over the cosmos—while the species that fail to make the transition perish, drowned like rats in a flood of their own information. And perhaps one of the successful species is out there right now, staring us in the face—but is so far advanced over us intellectually that we fail to recognize its intelfigence, just as the work going on at Berkeley's physics labs makes no impression on the butterflies in the Berkeley hilfs.

From those hifls, on a clear day, the view is magnificent. San Francisco Bay sparkles in the sunlight. Across the water rise the towers of San Francisco—the bright orange

span of the Golden Gate Bridge.

This gateway truly was golden, for it opened onto the realm of the vast Pacific, and from that realm American reaped wealth and power beyond its dreams. Now another golden gateway appears to be opening—this time for the whole human species, and to a whole universe rather than a mere ocean—as biology and technology prepare us, perhaps for the next step in our own evolution.

But we have to take that step ourselves. The decision is ours. And only time will tell whether we walk through that portal toward binary brain status, and face the future with minds made new—or turn away and be content, like the Sphinx and brontosaurus, to live as little minds on a little world. □

This article was adapted from David Ritchie's book, The Binary Brain, *published by Little Brown.*

PREDICTIONS

Continued from page 24

game units, not computers, will be sold in 1984 (sounds optimistic to us, but we cheer the sentiment). That's a total of twenty million game units. That's the basis of a healthy industry, it would seem to us.

The essential questions. How many of those fifteen million videogame units are unused and gathering dust? With the so-called disastrous videogame year just past, how many companies will continue to create games, and how many games will they create? How many retailers will commit to carry the games, and how many games will they carry?

Our predictions. We've already gone on record as saying that there are some startling graphics and gameplay breakthroughs in the offing. Also, it would be folly for the game companies to ignore the huge installed base of videogame units. Thus, the hobby, the industry will be alive and well in 1984...alive, well and sober to the realities: never will the boom era of 1982 return. Never. The number of serious gameplayers (hello, readers!) is large. Still larger is the number of players who will flock to the hits. Thus, the hit-or-miss sales atmosphere will deepen. There will be fewer games released, but realize that the hard-core quick-buck and rip-off artists have gone out of business or fled; the remaining companies must surely understand that they are boring consumers to death with their derivative designs. As it stands now, most games fall into very clear gameplay categories. All that must change. The rewards will only go to the risk-takers, the innovators.

Videogaming 1984: a brave new world. □

PREDICTION '84: SUCCESS WILL GO TO DONKEY KONG'S HEAD.

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2

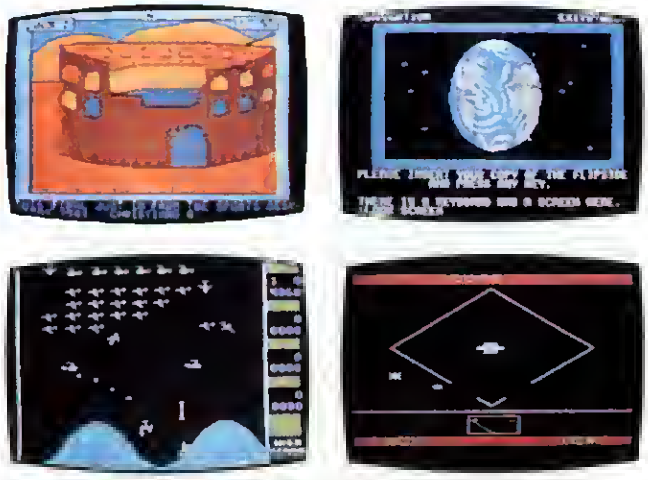
SOFTWARE STAR

The great corporate Horatio Alger story of the 1970s was surely that of Apple Computers, started in a garage and built in a few years into a company with hundreds of millions in annual sales—and the keystone of the home computer industry.

The saga of Sirius Software is not quite as romantic, but still not bad for a second-generation success story. Jerry Jewell, an insurance executive who designed game programs in his spare time, started the business in 1980 with Terry Bradley, operating part-time out of the latter's Computerland franchise in Sacramento, California. Within six months, Sirius' earnings exceeded the store's, which was subsequently sold. By the end of the company's first fiscal year they'd sold $3.8 million in games. Sales for 1983-4 are projected at more than five times that.

How has Sirius managed to thrive in an industry littered with multi-million dollar failures? First of all, says Jewell, "We made all our big mistakes three years ago, when Sirius was barely a business and the magnitude of money involved was much smaller. We've fallen on our faces with a couple of products, but we've learned from those experiences."

Furthermore, Sirius enjoys a decided advantage in the war for shelf space that the glut of games available has placed uppermost in every manufacturer's marketing strategy. At three-and-a-half years of age, Sirius is one of the oldest computergame manufacturers still operating successfully today. With over forty titles in eight different formats, totalling over ninety products, Sirius looks reassuringly stable to merchandisers who think ahead to the possibility of having to return unsold stock.

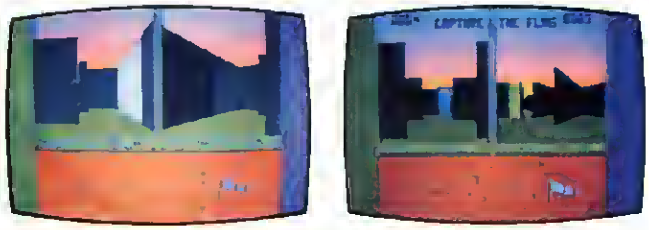


***Sirius games include (clockwise from top left)*Critical Mass, Gruds in Space, Alpha Shield, Wavy Navy.**

The third point in Sirius' favor is perhaps the most significant. To mix metaphors and combine cliches: rather than putting all their eggs in one basket, they've gotten a finger in every pie. They produce games for the **Atari 400/800/1200,** the **Apple II/II+/IIe,** the **IBM PC,** and the **Commodore 64** and **VIC-20.** On a smaller scale, they support the **Tomy Tutors, Spectravideo,** and the **Panasonic 200.** They are producing games for computers not yet on the market (which we expect to include the **Adam,** the **Peanut,** and the **MSX** series).

Among the action game releases that have helped Sirius' star to rise are *Alpha Shield* (penetrate it and destroy the evil Alpherion base within) and *Wavy Navy* (ride the waves in your PT boat as bombers dump on you and Kamikaze fighters drop in). A host of other titles were described in the September *Eye On.* Sirius' latest release, *Capture the Flag,* was mentioned last month; the screens included on this page are hot out of the stopbath.

It is clear, though, that Sirius' adventure game line is Jewell's darling. "Adventure games are a different breed of games altogether," he says. "They offer a series of puzzles the player has to solve, not necessarily in an obviously logical way, and this presents a very different kind of challenge."



Capture the Flag—*the latest release from Sirius.*

One such release is *Critical Mass,* which requires you to stop Count Stuportino from destroying five of the world's largest cities. As the on-screen clock ticks away, you have nine days to foil his scheme, balancing flight schedules and international time differences while searching for clues everywhere from the Central Park Zoo to the Paris sewer system.

Similarly challenging is *Blade of Blackpoole,* requiring players to find the magical sword Myraglym with the aid (and in some cases hindrance) of objects encountered along the way.

For adventure in a tongue-in-cheek vein, *Gruds in Space* sends the player in search of a stranded spaceship to which he must deliver rare fuel. Using techniques like teleporting and warp drive, the player may visit 110 different locations on several different planets.

Sirius has expanded into educational software, with *Type Attack* their pioneering effort. And also into hardware, including the *Sirius Joyport* (for using Atari joysticks with the Apple) and *Floyd* (an image recognition system). Where will Sirius' diversification end? Jerry Jewell draws the line quite clearly.

"What you won't see us doing is entering the business software market," he says. "We're strictly entertainment-oriented. As far as the

long-term future, who knows? We like this business, we consider it to be a lot of fun, and we're proud that we've made it as a success on our own."

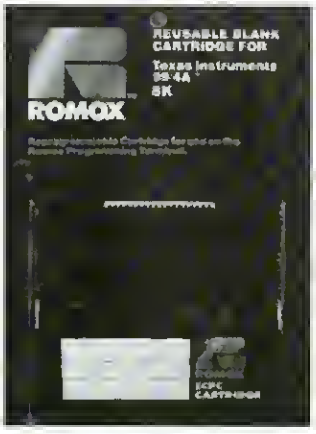
LONESOME COWBOY

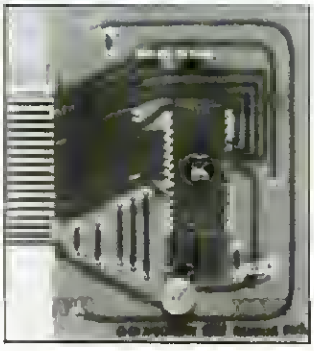
On October 28th, Texas Instruments announced that they were hightailing it out of the computer hardware business. This followed the announcement that the division had lost $110.8 million in the third quarter, which followed the loss of $119.2 million in the second quarter.

The company will continue to market its ***TI-99/4A,*** at an even lower price, in order to clear its inventory. That computer was being sold for as little as $57 in some stores, foltowing the announcement.

What does this mean to the million to a million and a half TI computer owners? TI will continue to service the units for at least a year. (The computers currently being sold carry a one-year warranty.) After that time, TI owners may have to expect some problems in that area.

As to software, TI's bonehead policies are coming back to haunt their customers. In the past, TI insisted on marketing all TI software themselves, a situation that drove many publishers away. Now TI has opened the market to the independents, but it is not a market they will be inclined to rush into. Many of the independent publishers have gone on record as saying that they will discontinue designing for the TI. And





Romox's Edge Connector Programmable Cartridge: TI software savior?

retailers may not want to carry TI software, since so many of them only sell software for the hardware that they stock.

There is a ray or two of hope, however. TI has said that they will continue to provide software. And, as we have said so many times before in similar contexts (perhaps only to reassure ourselves), a market of a million to a million and a half consumers will be hard to ignore. Some software design companies may stake that market for themselves. Also, Romox's ECPC terminals (now being test-marketed with good success) carry a TI port. (If you recall, these are the retail level terminals that, for a seven-or-so-dollar fee, will erase one program or game and program a new one on special Romox blank cartridges.) Romox has said that, for now, there are no plans to scuttle the TI terminal port; they plan to hang in there on behalf of TI owners.

GUIDE ALMIGHTY

Those clever folks at John Wiley & Sons in New York have published more Quick Reference Guides; the new guides are compatible with either the ***Commodore VIC-20, C-64,*** or the ***Timex Sinclair 1000.*** Previously published guides for the ***IBM-PC, Apple II,*** and the ***Atari 800*** proved to be quite popular.

Each six by twelve inch guide sells for $2.95, opens to four sturdy panels, and is fashioned to stand open beside the keyboard. The guides clearly present each individual computer's BASIC statements, system controls, input/output processing statements, memory statements, error messages, video and graphic controls, basic functions and arithmetic operations symbols.

NECESSARY EVIL

Math rears its ugly head, dominating this month's new educational game releases.

Program Design of Greenwich, CT offers *Quantitative Comparisons* for the ***Atari 400/800*** and ***Apple*** computers. The program contains seven lessons and a final test, presenting the challenges that the poor slob or slobette will face in standardized tests such as the SATs.

From CBS Software is a series of four math review programs; the series is entitled *Success with Math,* and the four programs within the series include *Addition/Subtraction, Multiplication/Division* (these for elementary school level), *Linear Equations* (grades seven to ten) and Quadratic Equations (grades eight to eleven).

LISA'S CHILD

As we predicted some issues ago, Apple's Lisa has inspired a new wave of user friendliness. Sierra On-Line's response is *Homeword,* a word processing program for the ***Apple*** and ***Atari*** computers and the ***Commodore 64.***

Sierra boasts that *Homeword* is the first word processing software program that uses icons, or symbols, to guide the user through the program's functions, rather than convoluted documentation (bewildering and irritating prose). A booklet and audio cassette help the user to get started.

The initial menu displays six symbols which represent filing, editing, print, format design, customizing, and disk utilities. Within each of these six are five or more commands, with appropriate symbols, that are more specific and use-

***Heavy symbolism with Sierra On-Line's* Homeword.**

ful. The Help key will disclose the functions of certain keys and offer short cuts.

Homeword divides the screen into three sections: the working portion, the page as it will look when it is printed, and charts of available memory and disk space.

Other features include optional joystick control, outline format, bold face and underlining, the ability to move whole sections of text, and file previewiug and merging.

The suggested retail price is $49.95.

Apple's innovotive Lisa has yet to catch on.

APPLE NEWS

Perhaps no company will be affected by the release of IBM's PCjr quite as directly, and as adversely, as **Apple**—or so goes the industry's common wisdom. In fact, once the dust settles, most clear-headed non-business-oriented consumers will find that Apple has more to offer for the home.

So much for the average consumer, and the home. The real IBM-Apple battleground is being waged in America's offices—and Apple is taking a licking. Who'd have predicted even a year or two ago that not being IBM-compatible would be such a millstone?

According to the *Wall Street Journal*, Apple is planning to enable Apple computers to communicate with IBM mainframes; further compatibility is being studied.

Meanwhile, Apple lle sales are slow, Lisa's sales are less than slow . . . and IBM's giant strides are not expected to help. But Apple is gearing up for the winter announcement of the McIntosh. Tentatively scheduled for a March ship date, the McIntosh (or Mackintosh) is a 32-bit lower-cost, Lisa-like computer. Unlike the Lisa, the McIntosh will have software available for it coincident with its release. Lisa software will run on the McIntosh, and new software will allow both computers to handle programs that fit the IBM-PC.

Two additional tentative strategies include a software product that will allow Apple lles to communicate with one another and "refitting kits" that will enhance the lle's capabilities.

Further random Apple notes:

• Apple is introducing a special pricing program for schools that lets them purchase Apple products at a thirty percent discount. Called the Investment in Education Program, the plan also permits purchasers to obtain one free product for every five purchased.

• Apple signed an agreement with BPI Systems of Austin, Texas to provide small and medium-sized businesses with accounting software for Apple computers.

• The Apple Writer III word processing program has been enhanced to increase its capabilities and to simplify many procedures. Apple is also offering an upgrade program at a discount to owners of the previous versions.

CAMP RUNAPROGRAM

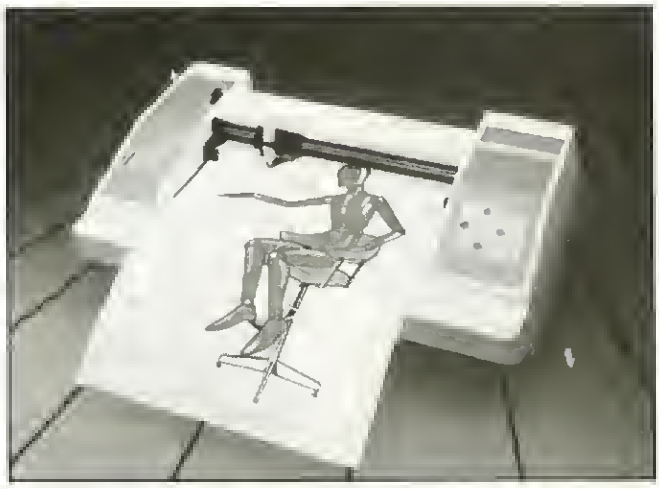
In previous issues we have discussed Atari's computer camps and the emergence of computer camps for adults. Perhaps it's time to go to the source: the computer camp that started it all . . .

This is recreotion?

National Computer Camps, now in their seventh year of operation.

NCC has five locations in Connecticut, Georgia, Missouri, Ohio and Oregon. Coed campers, ages nine to eighteen, are offered five hours per day on a computer and five optional hours. There is one teacher and one assistant per twelve campers, and two campers per Apple or Radio Shack TRS-80 computer. Traditional camp activities such as swimming, tennis, basketball, softball and short-sheeting are also offered.

For further information call Michael Zabinski, Ph.d, the executive director of the program, at (203) 795-9667 or write to National Computer Camps, Box 585, Orange, CT. 06477.



Comrex of Torronce, CA has introduced the CR-1810 ComScriber I plotter, $695. The pause button allows the changing of color pens.

eye on

CORRECTION

In our November issue's Eye On section, we told you about the Reads 2600 from VSS, Inc., got you all excited about it, and then mangled their address. We will now remedy that situation. VSS Inc., Hardware Development Division, 2829 W. Northwest Hwy., Suite 904, Dallas, TX 75220. (214) 352-1444.

CHRISTMAS BOOTIES

If you found a home computer in your Christmas stocking, you'll want to go over the latest releases in computergames. The following is what's most recently come available for the most popular home systems.

A press release from Imagic is received around here with much the same attitude as a letter from an aged and sickly relative: that any news at all is good news. Particularly when that press release refutes previous reports that the troubled company would cease producing games, and move strictly into design.

Now it can be told: Imagic entered into an agreement with IBM several months ago to produce software for the **IBM PCjr.** Their first release, *Demon Attack*, will ship in early January. The IBM version features a double screen and what Imagic assures us is greater depth, more dynamic gameplay and more impressive graphics than previous versions. Imagic promises to unveil two more releases at the Consumer Electronics Show in January.

New for the **IBM-PC** are the following (some/many/all of which may be compatible with the PCjr. as well, though it's impossible at this point to determine which ones):

Broderbund's *Serpentine* lets you ride boaback into battle with a planetful of giant slitherers. Special features of the IBM version are adjustable speed and challenge, and choice of two sets of screens, one of which utilizes the capabilities of RGB monitors to produce extra-detailed graphics.

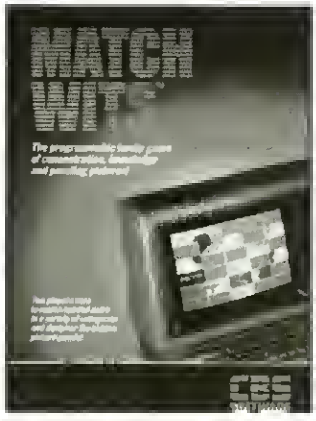
If you can afford a PC, you've probably already struck oil somewhere along the line. But if not, *Oil Barons* from Epyx will simulate the experience. You'll search and drill for oil in the desert, the jungle, and the ocean, making investment decisions and overcoming obstacles like government regulations, well fires, and hurricanes. (And to think that Jed Clampett just shot a bullet into the ground.) A colorful topographical game board and playing pieces help you identify your drilling sites. Can be played by one to eight persons.

Going from riches to rags, *Infidel* from Infocom puts you in the sand-filled shoes of an explorer marooned by his followers in the middle of the desert. Your only hope in this totally textual adventure is to reach the great lost pyramid that you came to Egypt to find—and that's when the skullduggery and cliffhanging really begin.

Match-Wits from CBS Software requires one or two players to answer questions in six pre-programmed categories: words, sports, famous people, multiplication, cities, and animals—to match pairs and uncover pieces of a rebus or picture puzzle. Players can create new categories or add to those on the disc.

"Billy, clean up your room!"

The first round of Atarisoft adaptations for the PC consists of *Dig Dug* (burrow horizontal and vertical tunnels in search of fruits and vegetables—and avoid the monsters they conceal), *Stargate* (sequel to *Defender;* fly to alien world to save helpless humanoids from an array of creatures), *Robotron 2084* (rescue humans from robot monsters bent on mass murder), *Pac-Man*, *Defender*, *Centipede*, and *Donkey Kong*.



That's edutainment.

The irony is not intentional in following this month's IBM game listings with those of a system at the opposite pole of the PC's success. That being made clear to mourning **TI-99/4A** owners, here are the current releases:

In *Wildcatting*, one of six for the TI-99/4A from Image Computer Products, you will try to find a hidden oil deposit, taking into account a geological survey and the permeter cost of drilling. The computer creates a different deposit each game. If you strike it rich, *Wall Street Challenge* will let you invest in a variety of stocks, ranging from steady earners to risky high-flyers. Stock charts and the Dow Jones will assist you. 8K and 16K versions are included. *Mind Master* is a game of strategy in which the computer designs problems and gives the gamer a guess-by-guess report on his progress. *Tournament Brick Bat* is a fast-action skill game that can be played in three modes: solo (you against the com-

puter), competitive (you against a friend), and cooperative (you and a friend against the computer). Two releases feature two games each: *Strategy Pack I (Roman Checkers* and *Frame Up)* and *Skill Builder I (Bingo Duel* and *Number Hunt).*

Parker Brothers' *Q*Bert, Popeye, Super Cobra,* and *Astro Chase,* all mentioned above, have also been made available.

While they might have rethought their decision had they known several months ago the unhappy destiny of the TI-99/4A, Atari certainly sought to capitalize on the relative scarcity of games software for the machine: of the twelve titles Atarisoft has released for a variety of systems, eleven will run on the TI-994A (no other system will take more than seven). Those games include *Picnic Poronoia* (chow down amid a swarm of ants, wasps, and spiders with bites that paralyze), *Protector* (pilot a spacecraft past meteors, rockets, and alien attackers to rescue eighteen people stranded near a soon-to-erupt volcano), *Shamus* (enter rooms and blow away robot henchmen), *Super Storm* (marshal a fleet of warships to prevent aliens from raising the ocean levels and drowning the earth), and the already-mentioned *Centipede, Defender, Dig Dug, Donkey Kong, Poc-Mon, Robotron,* and *Stargote.*

In the old days, students brought apples to the teacher. These days, apples bring teachers to the student—on floppy disks. Like the following educational (and entertainment) programs now available for the **Apple** computers:

Intellectual Decothlon makes players race against the clock in ten different games that test observation, memorization, and hand/eye coordination. *Antonym Antics,* operated by only four keys, can be played by grade schoolers without supervision. The *Function Game,* designed for students or teachers of analytic geometry and calculus at either the high school or college level, teaches players to recognize the graphs of math functions. All three from Muse Software, for the II and IIe.

Someday, tiny boxes that strap around the throat and automatically translate speech may save the lazy traveler from having to learn a foreign language. But for the more industrious, or for those who've already booked a tour to Paris or Acapulco or Manhattan, PDI's *Astro Word Search in French ond Spanish* is a palatable vocabulary builder. Each program can generate hundreds of puzzle grids, using words from its memory. The player must locate them, reading up, down, forward, backward, and diagonally. The computer keeps track of words found and the score. Of equal importance to the jet-setter is *Astro Word Seorch in Geogrophy,* using locations in the puzzles.

QUESTION: Which of the following statements(s) about *Fax* is true? A) It is a coin-op quiz game from Exidy; B) It has been released by Epyx for the Apple computers; C) The computer version features

Fax makes the leap from arcades ta hames.

nine hundred multiple choice questions in sports, trivia, history, and entertainment, with three levels of difficulty; D) The game can be played by one person or by two players who race to supply the correct answer first; E) It is available on disk or cassette. ANSWER: All of the above.

Abovementioned games also released in Apple format include *Centipede, Defender, Dig Dug, Donkey Kong, Pac Man, Robotron, Stargate,* (all for the II and IIe), *Infidel* (for the II), *Motch-Wits* (for the II+ and IIe), and *Oil Barons.*

Lame ducks generally don't command much respect, but with over a million units installed, software manufacturers are still tripping over one another to produce games for the **VIC-20:**

Broderbund has put three of its previous releases on cartridge for the system: *Seafox* (captain a submarine that must wipe out an enemy convoy and its escort, dodging depth charges, mines, and torpedoes), *Lode Runner* (over 150 screens requiring strategic problem solving, quick thinking, and quick reflexes—plus a game generating feature that lets you create unlimited new screens), and *Mastertype* (defend the spaceship Lexicon from invaders, depicted as words which you must type correctly).

Fun With Music requires the player to compose a song, then try to play the tune in game format without missing a note. On cartridge from Epyx.

Tiny Tutor gives children aged two through seven addition and subtraction problems to solve numerically and graphically. *Math Duel* provides addition, subtraction, multiplication, and division problems on three levels of difficulty for children in grades one through six. Both on cassette from Computer Software Associates.

Newly released from Imagic is an adaptation of *Dragonfire* (*Dungeons ond Dragons*-style adventure). And available among the aforementioned are *Chuck Norris/Artillery Duel, Q*Bert, Popeye, Super*

Cobra, Astro Chase, Centipede, Defender, Dig Dug, Donkey Kong, Pac Man, Robotron, and *Stargate.*

For the **Commodore 64:**

As Quicksilva's *Quintic Warrior,* you must stand alone against the sinister Crabmen and a domed city gone mad somewhere in the distant future.

Your problems will balloon in *Zeppelin Rescue* from Computer Software Associates. Available in disk or cassette.

Silicon Warrior, one of four Epyx releases, chronicles the conflict among the Houses Of Apple, Adam, Peanut, and Pong in the year 2084. The goal is a completed computer program that will unravel the mysteries of the universe; the winning warrior must be the first to program five chips on a 3D power grid in a vertical, horizontal or diagonal row.

Gateway to Apshai, the sequel to *Temple of Apshai,* combines role playing and strategy in a quest to collect treasures. While lining your pockets in this one-player game, you'll have to deal with monsters, traps, damsels in distress, and the ubiquitous dungeons.

Jumpman Junior, sequel to *Jumpman,* requires the player to defend headquarters from infiltration, ducking bullets and overcoming robots, dragons, birdmen, and flying saucers, plus such inconveniences as crumbling girders and vanishing escape routes. The cartridge, playable by one to four persons, features twelve different screens and eight speeds.

Packaged on a single disk or cassette are *Starfire* (attack enemy fighters with lasers while following a message panel that indicates speed, direction, firing ability, and score) and *Fire One* (use periscope and sonar scan to sink enemy fleet while avoiding enemy sub).

While we're in a martial mode, MicroProse Software has adapted to C-64 format four Atari games that would quench even George S. Patton's bloodthirst. *MIG Alley Ace* is a split-screen aerial combat simulation set in the Korean War, providing each player with his own out-of-cockpit view. *Nato Commander* is a full-scrolling real time wargame that requires players to react quickly to combat reports during a Soviet Bloc invasion of Europe. You can use air power, tactical nuclear weapons, and combat forces from all the NATO countries to battle the Red Threat. *Solo Flight Simulator* lets you practice takeoffs, landings, cross-country navigation, and emergency procedures in Day, Night, Crosswind, and Instrument Flying scenarios. *Hellcat Ace* is a three-dimensional aerial dogfight above the Pacific.

Brand new from Muse Software is *Rescue Squad,* requiring you to pluck unfortunates from a blazing bulding. And newly adapted is *Castle Wolfenstein,* embroiling a captured allied soldier in espionage and adventure in an ancient fortress.

From Image Computer Products: *Bouncer* (bounds from one trampoline to another, clearing off the squares and avoiding arrows that burst him), *Romeo* (traverse a scorching desert, a stream

***A touchdown? No, a correct answer on* Math Duel.**

Tiny Tutor *teaches tots to tabulate totals.*

Zeppelin Rescue, *with five different cityscapes.*

Practice flying or blowing commies to kingdom come with MicroProse games.

swimming with alligators, sharks, and floating logs, and treacherous terrain), and *Diablo* (a 116-panel contest that requires you to keep an ever-advancing ball from rolling off the board).

Trains from Spinnaker puts you behind the pince-nez of a late nineteenth century business tycoon, managing on old-time railroad servicing a network of industries in the Southwest. You must pay bills, set priorities, and meet deadlines as you utilize outside and natural resources to keep things on track.

Not exclusively a children's program, *Fun With Art* lets the user draw freestyle or choose from a menu of brush strokes, shapes, and 128 colors which he may combine. On cartridge.

Games mentioned above that have also been made available for the 64 include *Chuck Norris/Artillery Duel, Q*Bert, Popeye, Super Cobra, Astro Chase, Centipede, Defender, Dig Dug, Donkey Kong, Pac Man, Robotron, Stargate, Lode Runner, Pitstop, Fax, Fun With Music, Wildcatting, Wall Street Challenge*, and *Infidel.* Due in February are *Quest for Quintana Roo, Rolloverture, Campaign '84*, and *Gust Buster.*

For the **Atari** computers:

Gamers must defend a planet from fiery threads that threaten to destroy it in *Dragonriders of Pern*, adapted by Epyx from Anne McCaffrey's famous science fiction novels. In the strategy segment, the player mobilizes his/her political forces, creating alliances among the various socio-economic groups on Pern. In the action segment, he/she commands flying dragons whose fiery breath can consume the deadly threads before they fall.

Also from Epyx, a double disk/cassette teaming the arcade contests *Seawolf II* (dodge enemy fire while deep-sixing PT boats, aircraft carriers, and destroyers) and *Gun Fight* (sling lead against the computer or another player, using cacti and a stagecoach for cover).

All of the following from Image Computer Products: *Strategy Pack II* is an 8K game featuring four variations on a theme: *Target Chase* (catch or be caught), *Tunnels* (hide-and-seek), *Survival* (intercept your opponent before you crash or are devoured), and *Snake Hunt* (capture or escape from your opponent). *All Star Baseball*, available in both 8K and 16K versions, keeps track of innings, errors, and runs on an official scoreboard. *Dungeon Campaign* pits you and your warriors against underground creatures guarding the gold you seek to acquire. Both the 8K and 16K versions include sound effects. *Mind Master*, in 8K and 16K versions, requires one or several players to unravel secret codes designed by the computer.

Specifically for the 400/800:

PDI has published the *Vocabulary Building Games Library*, a four-volume set. Included are *AstroQuotes* (use computer clues to guess four words, and in turn a famous quotation), *Microssword* (computer creates the puzzle and a clue for each word), *Time Bomb* (video hangman), and *Kross 'N Quotes* (put scrambled letters in order to form a famous quotation).

Also from PDI comes *Swamp Chomp*, which takes you deep into the land of Muckedoo. You must cross a swamp teeming with alligators and sundry other creatures reach a flying machine that will carry you to a food station. The food you eat will turn you into a swamp chomper that can eat its enemies.

For the 400/600/800/1200 there's *Big League Nostalgia Baseball*, a 48K diskette that quizzes you on past and present trivia using an outs-and-innings format.

And available among the already mentioned games: *Astro Word Search in French and Spanish, Astro Word Search: Geography, Infidel, Quest for Quintana Roo, Rolloverture, Campaign '84, Gust Buster, Tunnel Runner, Omega Race, Q*Bert, Popeye, Super Cobra, Astro Chaser* (all for the 400/800), *Madden Football* (for the 400/800/1200), *Lode Runner, Pitstop, Silicon Warrior, Gateway to Apshai, Jumpman Junior, Starfire/Fire One, Fun with Music, Fun with Art, Wall Street Challenge, Strategy Pack I* (*Roman Checkers* only), *Skill Builder I* (*Bingo Duel* only), and *Trains.*□

you Read it Here First

When you consider what a phenomenon *Star Trek* is—in television syndication, movies, paperbacks, clubs, toys—it is surprising how few *Star Trek* videogames have been released. There have only been two, in fact: Sega's *Star Trek Strategic Operations Simulator* and the game for the Vectrex system loosely based on *Star Trek: The Motion Picture*. There are a few computergames with the *Star Trek* name affixed, but they are unauthorized and, for the most part, cosmic ca-ca.

In light of the enormous potential for videogame adaptations that the series offers, we feel that the lack of games is outrageous. To remedy the situation in our own poor fashion, the *VCI* staff dreamed up a few nonexistent *Star Trek* game descriptions, and we present them now purely for the amusement of our readers, illogical as that may be.

I'M A DOCTOR, JIM!

A videogame. The entire crew of the *Enterprise*, with one exception, has been turned into freeze-dried composite chemical cubes. The sole survivor is Dr. McCoy. As McCoy, you must get the *Enterprise* back to Starbase Twelve, where the facilities—a green garden hose—exist to water and de-cube the crew.

No instruction booklet is included. You are on your own. In a series of screens you must somehow raise the shields to ward off a Klingon attack, plot a course, ignite the warp drive, decode a scrambled message, and initiate orbit procedures . . . then and only then can you throw a tantrum.

KIRK AND THE ODD CREWMAN

A two-part videogame; one is quite conventional—the player must lose eventually. The other is for those who don't like to lose.

The planet Rigel 50 is embroiled in a savage civil war. In part one, you are a crewman beaming down to the planet's surface with Captain Kirk, Spock, and "Bones" McCoy. As the odd crewman, you are sure to die. The object of the game is to survive the vicious crossfire on the planet's surface for as long as you can.

In part two, you are Captain Kirk. You know that diplomacy is the only way that peace can be achieved on Rigel. You know that mediation can be offered from the safety of the ship. You are aware that the conditions on the surface are hellish: a firestorm of laser weapons and spiked projectiles. You know that you are invaluable to Starfleet. Naturally, you beam down to the planet's surface immediately.

In *Frogger*-style gameplay, you must avoid the crossfire, kiss the scientist's daughter, hit the mobile "Listen to reason" button three times, return to the ship and take the con in time to rib Spock . . . or risk losing your command.

SPOCK'S BRAIN.

A textual computergame, a rip-off variation of Infocom's *Suspended*. You are Spock. Your brain has been stolen, placed in a mason jar and wired to be the central processing unit of a huge metropolis. You must oversee the distribution of food and living quarters, traffic flow, political elections, crime enforcement, and the maintenance of the city's borders against hostile primitives.

For the most part, your commands must be limited to the parameters dictated by simple logic: conserving energy, striving for justice, sacrificing the needs of the few for the good of the many. However, every now and then, the game will force you to make commands inspired by brief, unwanted flashes of your human half. As such, your commands and responses will reflect sympathy, anger, impulse, and even a sense of mischief. At this time—even though criminals will be executed and corrupt politicians publicly flogged and food taken from the rich to feed abandoned puppies and orgies staged for your enjoyment—you must keep order and stop your captors from drop-kicking your brain in rage.

In a bonus round, you must undergo Amok Time, even though you are disembodied. In this round, your commands are totally illogical. The game's text will force you to rerout traffic through public buildings, sugarcoat the meat supply, and open the borders so that the primitives can join in a Roller Disco Holiday Week in honor of Sarek, your father. Though the city teeters on the brink of chaos, you must somehow retrieve the logical commands, regain your Vulcan discipline, and save the city from yourself.

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